

## ABSTRACT

Title of the Dissertation: AN EXAMINATION OF THE FACTORS THAT  
CONTRIBUTE TO UNDERGRADUATE  
PERSISTENCE AND GRADUATE DEGREE  
ASPIRATIONS FOR FIRST-GENERATION  
COLLEGE STUDENTS ATTENDING ELITE  
UNIVERSITIES

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First-generation college students' paths to and through higher education may be quite different from those of their non-first peers. Given some of first-generation students' background characteristics (e.g., race, income, educational aspirations, cultural capital) and the complexities of their home and college environments, the factors that may challenge these courageous students in achieving their educational objectives and aspirations may be abundant (Davis, 2010; Inman & Mayes, 1999; McConnell, 2000; Warburton, Bugarin, & Nuñez, 2001). As such, the purpose of this study was to examine the factors that contribute to the undergraduate persistence (i.e., college attainment) and graduate educational aspirations of 103 first-generation college students using a college impact lens. This study was based on data collected via the National Longitudinal

Survey of Freshmen (NLSF) from students attending 28 elite U.S. institutions and was guided by a number of research questions exploring the roles of student background characteristics and on- and off- campus environments in student outcomes.

The original research design for this study was grounded in multivariate methods, however, statistical vulnerabilities in the data prompted the use of bi-variate, non-parametric methods instead. Thus, while this study's revised research design could not offer predictive evidence with regard to the student backgrounds and environments studied, noteworthy findings did emerge. Specifically, data analysis revealed significant relationships between first-generation college students' involvements, such as interactions with peers and interactions with faculty, and the study outcome of undergraduate persistence. Further, significant associations were discovered between students' pre-college educational aspirations and undergraduate persistence and between the importance of family support and undergraduate persistence. Additionally, the bi-variate approach yielded a number of findings with regard to salient differences in first-generation student involvements given background variables.

This study's findings offered context for understanding the factors, both internal and external to the college environment, that potentially relate to first-generation college students' outcomes. Further, this study's results have implications for how practitioners, faculty, administrators, university leadership, and policymakers conceptualize and action interventions that serve to support and bolster first-generation college students and shepherd them toward college completion and beyond.



AN EXAMINATION OF THE FACTORS THAT CONTRIBUTE TO  
UNDERGRADUATE PERSISTENCE AND GRADUATE DEGREE ASPIRATIONS  
FOR FIRST-GENERATION COLLEGE STUDENTS ATTENDING ELITE  
UNIVERSITIES

by

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## **Dedication**

To my dearest husband, Keith James McCarron,  
for his strength, patience, and unconditional love.

A mia cara mamma, Teresa Iannaccone Pagliarulo,  
for her courage, selflessness, and sacrifice.

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## **Chapter One: Introduction of the Study**

The national employment landscape is changing, particularly in the realm of marketplace competencies and the educational credentials required for global competitiveness. World-wide, an incremental shift to knowledge-based economies (Berger, 2000; Brown, Lauder, & Ashton, 2008; Delbanco, 2012; Mathews, 2010; Organisation for Economic and Co-Operation Development [OCED], 2008; Switzer, 2008) is occurring and technological advances are re-shaping the world of work. As the professional arena changes, so do the educational credentials required to operate effectively in it. This point was emphasized by President Barack Obama in a recent address to Congress in which he asserted that “In a global economy where the most valuable skill you can sell is your knowledge, a good education is no longer just a pathway to opportunity – it is a pre-requisite” (The White House, 2009, ¶ 1).

Despite the current international economic downturns and the national recession, the value of educational credentials to career development, as affirmed by educators (Block, 2009; Carlson, 2011) and the Obama Administration alike, persists. According to a recent report issued by Georgetown University’s Center on Education and the Workforce (Carnevale, Smith, & Strohl, 2010), by 2018, nearly 60.0% of U.S. jobs will require postsecondary education, and “postsecondary education” will not only include two- and four-year degrees but also advanced credentials. Accordingly, these heightened requirements may result in a swell in employer demand for well-trained workers (Carnevale et al.). Given these educational and workforce projections and the centrality of higher education despite economic fragility, individuals who complete undergraduate and graduate studies will likely enjoy greater access to employment opportunities.

In addition to broader access and greater range in employment options, additional occupational findings note that individuals who complete their undergraduate and graduate degrees may also realize vast compensational benefits as compared to peers without post and advanced postsecondary credentials. Recent data on annual average earnings published by the U.S. Bureau of Labor Statistics (2011) indicated that, in 2010, individuals possessing a bachelor's degree earned 65% more than those holding only a high school diploma and were about half as likely to be unemployed. Additionally, the Bureau's findings revealed that individuals possessing master's, professional, or doctoral degrees earned up to 55% more than workers with bachelor's degrees and were also less likely to be unemployed. Akin to these government-gathered figures, in a recent College Board study, Baum, Ma, and Payea (2010) found a positive correlation between higher levels of education and higher earnings. Thus, it has become apparent that postsecondary credentials, both undergraduate and graduate, are a gateway to greater professional opportunity and to upward socioeconomic mobility (Baum et al.; Carnevale et al., 2010). Carnevale et al. asserted that "Given the transformation of workers by economic class, postsecondary education and training is no longer just the preferred pathway to middle and upper income classes—it is, increasingly, the only pathway" (p. 6). In short, college degrees seem central to pursuing and living the "American Dream" (Clark, 2003).

The American Dream is so poignant because it encompasses the attainment of intergenerational mobility through which children can achieve financial status and security beyond that of their parents and grandparents (Bedsworth, Colby, & Doctor, 2006; Clark, 2003; Sawhill & Morton, 2007). While this study contextualized the American Dream in terms of college completion, it is important to note that the Dream is

much more multi-dimensional than this conceptualization, shaped by societal norms, and completely personal to those aspiring to it. Historical literature traces the evolution of the American Dream from the ideological “pursuit of happiness” noted in the Declaration of Independence (Beach, 2007) to a post-World War II desire for a plot of land, home and vehicle ownership, and the chance to education children (Kamp, 2009). This continuum of differing and valid understandings of the American Dream persists today. For some, the American Dream is about a better life in the U.S. than in their native countries (Kamp), for others it means small business ownership (James, 2009; Martin, 2009; Zimmerman, n.d.), and, for many, it represents college attainment (Clark, 2003).

The link between the American Dream and college attainment has been reinforced considerably recently as sociopolitical priorities, such as the educational initiatives spearheaded by the Obama Administration, have pushed higher education into the spotlight. In fact, this connection has been explicitly articulated via the White House’s guiding principles on education: “Our nation’s economic competitiveness and the path to the American Dream depend on providing every child with an education that will enable them to succeed in a global economy that is predicated on knowledge and innovation” (The White House, 2009, ¶ 2). Given the notable associations between postsecondary education, career possibilities, and workforce competitiveness, for many, college enrollment represents a clear path to realizing both the ideological objectives and practical benefits of the American Dream. However, as individuals aspire to higher heights than earlier generations, many become the first in their families to strive for and attain a postsecondary degree. These special “firsts” in higher education are often termed “first-generation college students.”

While “first-generation” is characterized differently across research agendas and institutional admissions records (e.g., some parental higher education but no degree, no parental education beyond high school) (Davis, 2010), a number of studies indicate that these students are a substantial proportion of the undergraduate college-going population. In an early national study analyzing National Center for Educational Statistics (NCES) data, Choy (2001) noted that 47.0% of all 1995-1996 beginning postsecondary students were first-generation, with 53.0% enrolling at two-year institutions and 34.0% enrolling at four-year institutions. In their examination of the NCES’s 2003–04 National Postsecondary Student Aid Study (NPSAS:04), Horn and Nevill (2006) found that 35.0% of undergraduates’ parents had a high school diploma or less. In 2005, Chen’s nationally representative data showed that 22.0% of students enrolling in college between 1992 and 2000 were first-generation students and, more recently, in a study of four-year institutions, Saenz, Hurtado, Barrera, Wolf, and Yeung (2007) found that first-generation students comprised 16.0% of the freshmen class. Additionally, while the definitional semantics and institutional type vary the proportion of known first-generation college students, these students are clearly a noteworthy constituency representing a range in diversity (e.g., race and ethnicity, age, and socioeconomic status (SES)) (Bui, 2002; Chen, 2005; Choy, 2001; Davis, 2010; Engle & Tinto, 2008; McCarron & Inkelas, 2006).

Given the brief compositional details shared above, the substantial numbers of first-generation students arriving on college campuses suggests that the American Dream is alive and well for these pioneers. These students are flocking to institutions of higher education in pursuit of credentials that will open doors perhaps closed to parents and grandparents (e.g., employment, financial security) and give them the competitive



advantage over peers with high school credentials. Yet, in addition to tangible assets associated with college completion, first-generation students may also be the first in their families to trouble the system of social reproduction associated with social class (Bourdieu, 1977) and create a new system for their children. As noted by Hochschild and Scovronick (2003) (as cited in Beach, 2007), “the success of one generation depends at least partly on the success of their parents or guardians. People who succeed get to keep the fruits of their labor and use them as they see fit...” (p. 2). These successes can be used to place children in better schools, help children aspire to more prominent colleges, or choose housing in well-resourced neighborhoods. Thus, by realizing the college attainment dimension of the American Dream, first-generation students might not only be improving their circumstances, but also the circumstances of future generations.

However, first-generation students face multitudinous complexities of college pursuit brought on, in part, by the modesties of their parents’ education. As such, these students require special support in both the college aspiration development and college completion processes in an effort to counteract the lack of operational and navigational know-how more readily available to their non-first generation peers (Davis; Engle, 2007). These “firsts” are a population of explorers forging into uncharted waters in search of the American Dream; their common experience is worthy of attention and action. As more support emerges for Carnevale et al.’s (2010) assertion that postsecondary degrees will be the only pathways to social mobility and opportunity, educators, administrators, and policy-makers must understand fully the factors that contribute to the short- and long-term ambitions and successes of first-generation college students.

## **Background of the Study**

Despite the significant numbers of first-generation students filing through campus corridors, undergraduate degree attainment rates have not been promising (Chen, 2005; Choy, 2001; Duggan, 2001; Engle, 2007; Inman & Mayes, 1999; McCarron & Inkelas, 2006; Strage, 1999); in fact, these students are often referred to as “at-risk” (Terenzini, Springer, Yaeger, Pascarella, & Nora, 1996). A number of researchers have attributed this “risk” to factors that often differentiate first-generation students from non-first-generation peers, including financial challenges, lower levels of social and cultural capital transmitted by parents, modest pre-college curricula and educational aspirations, stress associated with the cultural negotiation of home/campus life (i.e., college culture shock) (Inman & Mayes; McConnell, 2000), differing levels of campus involvement, and the obligation of off-campus commitments (e.g., employment, family) (Billson & Terry, 1982; Brooks-Terry, 1988; Chen; Davis, 2010; Engle, Bermeo, & O’Brien, 2006; Horn & Nuñez, 2000; Hossler, Schmit, & Vesper, 1999; Ishitani, 2006; Lohfink & Paulsen, 2005; Lundberg, Schreiner, Hovaguimian, Miller, 2007; McDonough, 1997; Pascarella, Pierson, Wolniak, & Terenzini, 2004; Pike & Kuh, 2005; Terenzini et al.).

This abundance of risk-oriented research provides a disheartening snapshot of the first-generation student. Yet, while first-generation students may struggle with some or all of the factors above, to paraphrase Green (2006), caution must be taken to avoid a deficit-based understanding of these students. In addition to highlighting the innate skills and abilities of each student, it is critical that research examine the circumstantial factors salient in first-generation students’ journeys toward achievement of the American Dream.

Two such circumstantial factors, race and income, represent noteworthy areas of difference between first-and non-first generation students and may play an explicit role in both undergraduate persistence and the development of aspirations for graduate study. Research indicates that first-generation college-goers are more likely to be students of color (Brown & Burkhardt, 1999; Bui, 2002; Chen, 2005; Choy, 2001; Horn & Nuñez, 2000; McCarron & Inkelas, 2006; Saenz et al., 2007) and to come from lower-income homes than their non-first peers (Chen; Hertel, 2002; McCarron & Inkelas; Nuñez & Cuccaro-Alamin, 1998; Terenzini et al., 1996). A number of first-generation students may also be immigrants or children of immigrants (Fortuny, Capps, Simms, & Chaudry, 2009; Larsen, 2004; Saenz, et al.). Thus, racial/ethnic marginalization might be particularly palpable for first-generation students who feel as though they must cross significant racial/ethnic “boundaries” (e.g., students of color at predominantly White institutions) in their search for a campus community (Lundberg et al., 2007).

Further, once at the higher education table, many of these students must contend with the socioeconomic stresses of managing the costs of college and, potentially, balancing a need to work while focusing on studies (Engle et al., 2006; Inman & Mayes, 1999; Walpole, 2003). These financial stresses seemingly dissipate little as first-generation students attempt to transition from undergraduate to graduate education. Both Payne (2006) and Engle and Tinto (2008) noted that finances posed a significant challenge in students’ realizations of aspirations for advanced study.

In addition to the role of race and economic standing in the completion of higher education for first-generation college students, pre-college academic preparation has also been an area of concern. Specifically, Warburton, Bugarin, and Nuñez (2001) found

that, compared with their non-first-generation peers, first-generation students were less likely to have been exposed to rigorous coursework in high school and were less likely to have taken the standardized college entry tests such as the SAT or ACT. Additionally, Choy (2001), Brown and Burkhardt (1999), and Riehl (1994) reported that first-generation students had lower high school grade point averages (GPA), had more modest perceptions of their academic preparation, and were not as qualified for college. Yet, it is important to note here that academic under-preparation and lower grades may not be linked to the innate talents of the students but to the larger, systemic challenges inherent to first-generation status (Green, 2006). As noted by several first-generation college students in Engle et al.'s (2006) study, the most difficult area of the high school-to-college transition they faced involved academics, but appropriate support made the transition much more palatable.

In addition to the difficulty with academic transition, Engle et al. (2006) also found that first-generation college students had no or low aspirations for attending college. Walpole (2003) found a similar trend in aspirations for first-generation students regarding advanced degrees, suggesting that the potential barriers that inhibit first-generation students' ambitions and success as undergraduates persist in the graduate education scenario. Scholars often link the fledgling educational aspirations of first-generation students with the modest levels of cultural and social capital available to students given their parents' limited or nonexistent experience with college (Duggan, 2001; Hossler et al., 1999; York-Anderson & Bowman, 1991). Cultural capital, most prevalent in the homes of the upwardly mobile, includes knowledge about/appreciation for high culture as well as savvy with strategic interactions, while social capital is defined

as social networks, which lead to an individual's advancement (Bourdieu, 1977; Coleman, 1988; Dumais & Ward, 2010; Hossler et al.; McDonough, 1997).

Research purports that students benefiting from high levels of cultural capital develop confidence in interacting with higher education gatekeepers (e.g., admissions counselors, faculty) and have an intuitive understanding of the tactical elements of the college-going process (e.g., applications, assignments, campus interactions) (Dumais & Ward; Lareau & Weininger, 2003). For traditionally-aged first-generation students, especially, the "language" of college transmitted through cultural capital can be critical to aspirations and, more importantly, attainment. Further, this transmission of capital may be as salient for the development of graduate aspirations as it is for the development of undergraduate aspirations. In her investigation of the relationship between parental capital (i.e., cultural, human, and social) and graduate aspirations for nearly 300 first-generation college students, Hayden (2008) found that parental capital, though modestly, was related to aspirations for graduate study.

First-generation college students' unfamiliarity with the college setting and "norms," potentially as a result of lower levels of cultural capital, may also often lead to a sense of "culture shock" (Cushman, 2007; Inman & Mayes, 1999; McConnell, 2000). Culture shock may emerge, especially at the undergraduate level, as students not only attempt to deal with the anxieties common to the general college-going population but also the potential stresses and guilt associated with negotiating the cultural divide between home and college life (Piorkowski, 1983; Votruba, 2007). First-generation college students, particularly those raised in collectivist cultures (Lohfink & Paulsen, 2005), may struggle with a "double assignment" (Brooks-Terry, 1988, p. 123) in

attempting to internalize college values while maintaining family values. Davis (2010) observed that the first-generation student is often left to his/her own devices in understanding how to “behave as a member of the culture of college and how to perform the role” (p. 30) of a college student. While courageous trailblazers, these “firsts” may feel as though they are campus outsiders (Hertel, 2002; Lundberg et al., 2007; Pascarella et al., 2004) and, thus, have difficulty persisting and planning for long-term success.

As “outsiders” negotiating this college cultural divide, first-generation students may find it particularly difficult to become involved on campus and to engage with peers and faculty at the institution (Astin, 1996; Christie & Dinham, 1991; Hertel, 2002; Inkelas, Daver, Vogt, & Leonard, 2007). Involvement, characterized as “the amount of time and physical and psychological energy that the students invest in the learning process” (Astin, 1996, p. 124), is linked to a host of college outcomes including persistence (e.g., Astin 1984, 1993; Astin & Oseguera, 2005; Berger & Milem, 1999; Kuh, Schuh, Whitt, & Associates, 1991; Kuh, Kinzie, Schuh, & Whitt, & Associates, 2005; Pascarella & Terenzini, 1991, 2005; Terenzini, Rendón, Upcraft, Millar, Allison, Gregg, & Jalomo, 1994; Whitt, Edison, Pascarella, Terenzini, & Nora, 1999) and aspirations for advanced study (Heath, 1992; Pascarella, 1984; Sax, Bryant, & Harper, 2005; Strayhorn, 2010). However, first-generation students’ levels and types of involvements may be different (e.g., focus only on academic involvements) or constrained because of external commitments (e.g., work and family obligations) (Walpole, 2003), unfamiliarity with the college culture (Terenzini et al., 1996), feelings of marginalization, and/or preferences/necessity for involvement with family and friends external to the institution (Lundberg et al., 2007).

Given the aspects of the first-generation student experience discussed thus far, a complex portrait of these “firsts” emerges. The research affirms that a number of personal and systemic variables may have a hand in contributing to these students’ achievement of educational outcomes. Further, the literature affirms that the parallels between the factors salient to first-generation students’ journeys through college and the factors salient to enabling their optimistic disposition toward graduate study are numerous. As highlighted above, student’s personal background factors such as student race and income and manifestations of cultural capital through pre-college academic preparation and aspirations can play a significant role in the undergraduate persistence and advanced degree aspirations of first-generation college students. Further, first-generation students’ type and level of involvement and interaction with components of the college and home environments may also play a role in their feelings of connectedness to the institution and, subsequently, factor into departure and post-baccalaureate study ambitions. Finally, and quite salient to first-generation students, the limited cultural capital with which to decipher college may compromise the realization of positive educational outcomes.

Given the primacy of outcomes in the undergraduate experience, a number of college impact models (Astin, 1993; Bean & Metzner, 1985; Tinto, 1987, 1993; Weidman, 1989) have established a link between students’ personal characteristics and their involvement in and outside of the college environment to student outcomes. These models, while not specific to first-generation college students, have categorized outcomes in a myriad ways (e.g., aspirations, career choices (Weidman), persistence (Bean & Metzner; Tinto)) and have proven valuable in establishing a baseline

understanding of the relationship between person and environment. Given the uniqueness of first-generation college students' backgrounds, their ways of engaging their environments, the disheartening completion figures, and the dearth of research extending what is known about first-generation students' aspirations beyond the baccalaureate (Payne, 2006), this study will explore this special population using the college impact model lens. Specifically, this study will examine how the individual components of the first-generation student portrait, in concert with involvement in a variety of environments, contribute to the student outcomes of undergraduate persistence and aspirations for post-baccalaureate (i.e., graduate) degrees.

### **Purpose of the Study and Research Questions**

First-generation college students' paths to and through higher education are different than those of their non-first peers. These pioneers must not only balance the academic responsibilities common to any college student but they must also negotiate the intricacies of being "first" to engage the "...rarified and often mystifying culture of rules, rites, and rituals" (Oldfield, 2007, p. 2) inherent to college. Given first-generation students' background characteristics and the complexities of their home and college environments, the factors that may challenge these courageous students in achieving their educational objectives and aspirations may be abundant (Davis, 2010; Inman & Mayes, 1999; McConnell, 2000; Rhie, 1994; Terenzini et al., 1996). As such, the purpose of this study was to examine the factors that contribute to the undergraduate persistence and graduate educational aspirations of first-generation college students. The study, based on data collected via the National Longitudinal Survey of Freshmen from students attending 28 elite U.S. institutions, was guided by the following research questions:



1. What are the factors that contribute to the undergraduate persistence and graduate educational aspirations of first-generation college students attending elite institutions?
  - a. Do student background characteristics (i.e., race, gender, generational status in the U.S., pre-college annual household income, pre-college academic aptitude, pre-college educational aspirations, sibling post-secondary attainment, and frequency of pre-college engagement in cultural capital activities) contribute to undergraduate persistence and graduate educational aspirations?
  - b. Do intra-institutional involvements (i.e., frequency of student-student interaction, frequency of co-curricular involvement, frequency of student-faculty interaction, and students' perceptions of the importance of faculty mentoring) contribute to undergraduate persistence and graduate educational aspirations?
    - i. Is there a difference in intra-institutional involvements by students' race, gender, generational status in the U.S., pre-college annual household income, pre-college academic aptitude, pre-college educational aspirations, sibling post-secondary attainment, and frequency of pre-college engagement in cultural capital activities?
  - c. Do extra-institutional involvements (i.e., the frequency of student-parent interaction, students' perceptions of the importance of family

support in guiding them through their college careers) contribute to undergraduate persistence and graduate educational aspirations?

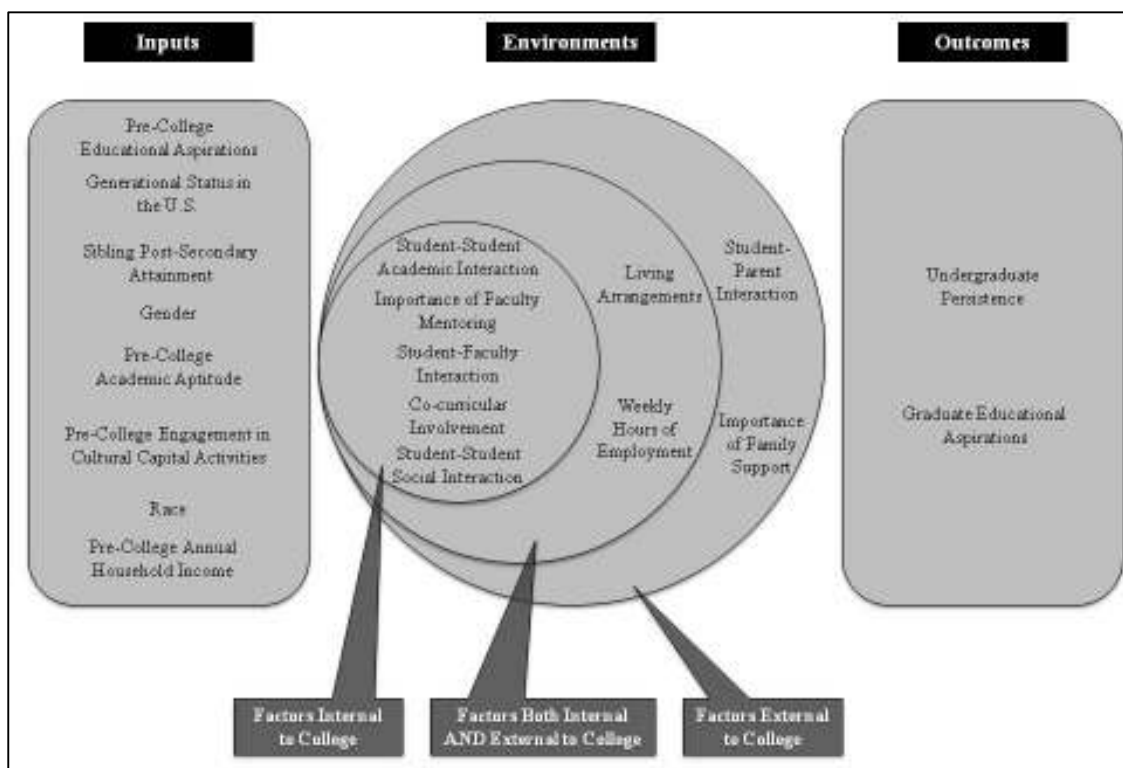
- i. Is there a difference in extra-institutional involvements by students' race, gender, generational status in the U.S., pre-college annual household income, pre-college academic aptitude, pre-college educational aspirations, sibling post-secondary attainment, and frequency of pre-college engagement in cultural capital activities?
- d. Do intra/extra-institutional involvements (i.e., weekly hours of employment, living arrangements) contribute to undergraduate persistence and graduate educational aspirations?
  - i. Is there a difference in intra/extra-institutional involvements by students' race, gender, generational status in the U.S., pre-college annual household income, pre-college academic aptitude, pre-college educational aspirations, sibling post-secondary attainment, and frequency of pre-college engagement in cultural capital activities?

The research questions outlined above were developed to broaden the understanding of the interactions between the first-generation college student and his/her many and diversified environments. Environments discreetly within (i.e., intra) and external to (i.e., extra) the students' institution were explored in addition to environments that straddle both worlds and could not be relegated to one or the other (i.e., student employment, living arrangements). Figure 1 provides a visual conceptualization of the

college impact model lens that was employed for this study as well as the individual components aligned with the research questions above. In the following section, the discussion on study significance will clarify further the rationale for the research questions posed and address the study’s potential value to larger audiences.

Figure 1

*Conceptualization of Study College Impact Model with Inputs, Concentric Environments, and Outcomes*



### Significance of the Study

Results of this study contributed to the toolkit of higher education administrators, staff, and faculty committed to fostering first-generation student success as well as federal, state, and local policy-makers and advocates intent on eliminating the college degree completion shortfall currently jeopardizing the U.S.’s long-term market competitiveness and productivity. While findings are most helpful to improving an

understanding of the experiences of first-generation students enrolled at elite institutions, broader lessons did emerge. A complete discussion of the study's contributions follows.

First, given the host of student background and systemic factors that may make first-generation college students vulnerable to attrition, this study contributed to a more grounded understanding of the *specific* factors related to persistence for first-generation students enrolled at elite institutions. This understanding was not limited to short-term college survival but focused on degree attainment and, thus, helped to address what Nora, Barlow, and Crisp (2005) cited as a substantial gap in the current first-year-focused persistence literature. Subsequently, this discussion of student persistence not only contributed to an understanding of individual students' realization of the American Dream, but also enabled an exploration of the college factors that play into the potential achievement of credentialing and, as a result, national workforce goals.

Second, while a number of studies have examined the first-generation student experience in the pre-college years, very little research has focused on the explicit environments with which first-generation students, let alone first-generation students at elite institutions, engage while in college. While a good deal of research points to the benefit of institutional involvement and, specifically, participation in co-curricular activities and faculty and peer interaction (Astin, 1993; Kuh et al., 1991, 2005; Pascarella & Terenzini, 1991, 2005), the benefits of those involvements for first-generation college students are largely unknown. Thus, this study contributed to a broader understanding of the types of first-year campus-based interactions first-generation students seek out while enrolled and the relationship of those interactions to undergraduate persistence. These

findings are especially poignant given the lens of selective institutions and questions of how more elite college environments matter to long-term outcomes.

Third, and related to the point above, this study contributed to the knowledge base of college educators via data on the critical nature of a) interactions and involvements external to the college environment and b) involvements that straddled the campus gates (i.e., intra/extra-institutional). While cited as “non-involvements” (Astin, 1993) and potentially harmful to students’ abilities to engage with the institution, in general, home life engagements and their relationships with first-generation student outcomes have been largely left unexamined. Scholarship on these interactions is particularly scarce with regard to students at elite institutions. Therefore, this study’s findings provided a small window into the associations between off-campus involvements and intra/extra-institutional involvements *and* study outcomes as well as student background variables. This contribution may be particularly helpful in the context of students attending elite institutions given institutional demands that might challenge home life involvement.

Fourth, given that first-generation students are more likely to be students of color (Brown & Burkhardt, 1999; Bui, 2002; Chen, 2005; Choy, 2001; Horn & Nuñez, 2000; Saenz et al., 2007) and to come from lower-income homes than their non-first peers (Hertel, 2002; McCarron & Inkelas, 2006; Nuñez and Cuccaro-Alamin, 1998; Terenzini et al., 1996), this study provided administrators, faculty, and policy-makers with insight on how student backgrounds potentially interplay with college outcomes. Further, this study noted avenues via which educators and policy-makers can engage the educational pipeline (i.e., P-12), design and implement better transitional programs, and enact higher education learning environments that are inclusive, supportive, and resource-rich.

Fifth, while this study's findings still left a number of unanswered questions with regard to the factors associated with first-generation college students' graduate educational aspirations, the results did underscore the significant need for continued and targeted study of this outcome. As Engle and Tinto (2008) noted, while an undergraduate degree is essential for the new economy, it may soon be less than adequate. As such, examining first-generation students' graduate degree aspirations may provide clues for helping them realize their ambitions. Payne (2006) noted that in order for first-generation students to get to graduate school, they must first get through undergraduate programs. Thus, this study underscored the importance of future research that aids administrators, faculty, and staff in designing interventions that will support first-generation students through the bachelor's degree "gateway" and into graduate study.

### **Overview of the Methodology**

For this study of first-generation college students and the factors contributing to their undergraduate persistence and graduate degree aspirations, a correlational *ex post facto* research design was attempted using the National Longitudinal Survey of Freshmen (NLSF) administered by the Office of Population Research (OPR) at Princeton University. The NLSF was conducted at 28 selective U.S. colleges and universities in five waves with the first wave beginning in 1999 as students entered their freshman year at the institutions. Subsequent follow up waves were administered in the spring of 2000, 2001, 2002 and 2003. In addition to the longitudinal data collected from respondents via the five survey waves, OPR also published respondent graduation data as of spring 2005 culled from participating institutions' registrars' offices and the National Student Clearinghouse. Given that the NLSF tracked students as they departed from one

university and either enrolled in another or stopped out, the collected data allowed for an investigation of system persistence. Hagedorn (2005) noted that “system persistence accommodates the frequent occurrence of transfer or reenrollment at another campus, in another state or...institutional type” (p. 98). This system-oriented perspective enables a more holistic understanding of students’ persistence to degree completion.

For the purposes of this study, the “students” selected were those with “first-generation status,” to be defined below. Of the 3,924 total students in the NLSF sample, this study focused on a smaller sample of 103 participants. Additional details regarding sampling strategy and general methodology will be provided in chapter three.

### **Definition of Terms**

**First-generation college student.** As Davis (2010) observed, in prior studies, first-generation college students have been defined in one of three ways: a) Students whose parent(s) had no college experience, b) Students whose parent(s) had some college experience but no degree, and c) Students with one parent possessing a college degree or higher credential. For the purposes of this study, and in alignment with a significant number of researchers, first-generation college students were defined as students whose parents had no college experience (Brooks-Terry, 1988; Hayes, 2006; Horn & Nuñez, 2000; Inman & Mayes, 1999; Pascarella et al., 2004; Saenz et al., 2007; Terenzini et al., 1996; Warburton et al., 2001).

**Cultural capital.** One of the student background characteristics identified in the guiding research questions was “cultural capital.” Cultural capital was introduced by Bourdieu (1977, 1986) as the “property” (e.g., knowledge about high culture and society) that middle and upper class families transmit to their children to help them negotiate

society and maintain class status (Bourdieu; Coleman, 1988). Cultural capital is often linked with “habitus,” which is an internalized set of experiences, perspectives, and beliefs that individuals accumulate from their immediate environments (Bourdieu; Perna, 2000). As noted previously, Dumais and Ward (2010) defined cultural capital as both exposure to high culture and ease with strategic interactions necessary to the college-going process. For the purposes of this study, cultural capital was conceptualized as the frequency with which students’ parents exposed them to select cultural and educational activities (e.g., travel, museums, arts) in the pre-college years.

**Involvement.** Student involvement “refers to the amount of time and physical and psychological energy that the students invest in the learning process” (Astin, 1996, p. 124). While the concept of involvement will be discussed at length in later sections of this study, it is important to note that, for this study’s purposes, “involvement” was defined by the amount of time spent with certain activities/relationships. Further, and in respectful opposition to proposed nomenclature (Quaye & Harper, 2009), involvement and engagement were used interchangeably. Quaye and Harper observed that involvement and engagement differ in that engagement actually calls the student to active participation via leadership or purposeful membership in an activity. Similarly, in consultation with a number of scholars, Wolf-Wendel, Ward, and Kinzie (2009) found that “engagement differs from involvement in that it links more directly to desired educational processes and outcomes and emphasizes action that the institution can take to increase student engagement” (p. 414). Given that the aim of this study was to link first-generation student involvement to outcomes and to help revise institutional practice, involvement and engagement (intra- and extra-institutional) were addressed similarly.



*Intra- and extra-institutional environments and involvements.* Given the portrait of first-generation college students presented thus far, the importance of both intra-institutional (i.e., internal) and extra-institutional (i.e., external) environments as potential factors contributing to persistence and graduate educational aspirations is unambiguous. Reason (2009) asserted that “the goal of persistence research must be to explore students within the multiple concentric environments they inhabit, recognizing that different students engage differently within those environments” (p. 676). Thus, in alignment with Reason’s observation, this study’s conceptual framework (discussed in chapter two), and the first-generation profile, “environments” and “involvements” were conceptualized broadly to include on- and off-campus elements. Further, in recognition of the “concentric” nature of first-generation students’ engagement, as depicted by the concentric environment spheres in the center of Figure 1, this study explored intra/extra-institutional environments that could be *either* campus- or non-campus-based (i.e., employment and housing) depending on the individual.

With regard to the campus-based environments, vast amounts of research point to the benefits of student interaction with faculty and peers as well as engagement in co-curricular programming to undergraduate persistence (Astin, 1993; Hurtado, Carter, & Spuler, 1996; Dennis, Phinney, & Chuateco, 2005; Kuh et al., 1991, 2005; Pascarella & Terenzini, 1991, 2005). Given the saliency of these involvements and their potential openness to interpretation, following is a brief definition of terms applicable to this study.

*Student-student and student-faculty interactions.* Student-student (i.e., peer) interactions and student-faculty interactions have been defined as formal and informal discussions and relationships both inside and outside of the classroom that exert influence

on student outcomes (Astin, 1993; Newcomb, 1962; Pascarella & Terenzini, 2005). For the purposes of this study, the definition of student-student and student-faculty interactions was guided by the NLSF items inquiring about frequency of respondent contact with peers and professors. Where feasible, the student-student and student-faculty interaction variables included both academic (i.e., course-related) and social (i.e., non-course related) aspects in order to address Astin's assertion that interactions happen formally and informally within and external to the classroom. The study's examination of mentorship was couched in the context of student-faculty interaction.

*Co-curricular involvement.* While co-curricular involvement may be viewed as another form of peer interaction, the concept was examined separately from "student-student interaction" in this study. A number of researchers couch co-curricular involvement in terms of student engagement with campus clubs and organizations focused on a number of interests including athletics, Greek life, politics, service, and/or religion (Elliott, 2009; Huang & Chang, 2004; Inkelas & Associates, 2007; Pascarella & Terenzini, 1991, 2005). For the purposes of this study, co-curricular involvement was defined as such. While the benefits of co-curricular involvement to student academic achievement and persistence might vary depending on the type of student organization (Baker, 2008; Terenzini, Pascarella, & Blimling, 1996), the overall benefit of engaging students is broadly understood (Kuh et al., 2005) and presents a topic of interest in the exploration of the first-generation experience.

In addition to the campus-based peer and faculty involvements noted above, this study also included variables representative of participants' off-campus life, per Reason's (2009) "concentric" conceptualization of student life. As such, "extra-

institutional” involvements in the form of student-parent interactions and perceptions of family support were examined. While perceptions of family support included students’ observations on the importance of family to college success, student-parent interactions, for the purposes of this study, were shaped by NLSF instrument questions inquiring about students’ frequency of home-based visits.

**Undergraduate persistence.** Persistence has been defined as “an individual phenomenon—students *persist* to a goal” (Reason, 2009, p. 660). Yet, Reason notes “that a student’s ultimate goal may (or may not) be graduation from college...” (p. 660), and, as such, “...a student may successfully persist without being retained to graduation” (p. 660). This observation is an important one that underscores the notion that persistence can be studied in a number of ways and can range from term-by-term persistence to full undergraduate attainment. While some of the literature explored in this study couched persistence differently, with regard to this study’s research interests, “persistence” referred to long-term persistence and included the completion of an undergraduate degree. The following definition for persistence, offered by Berger and Lyon (2005), was assumed: “the desire and action of a student to stay within the system of higher education from beginning year through degree completion” (p. 7).

**Graduate educational aspirations.** Andres, Adamuti-Trache, Yoon, Pidgeon, and Thomsen (2007) noted that “aspirations” refer to an individual’s hopes for a particular outcome. In the context of this study, this outcome was graduate education. In accordance with the NLSF survey items presented to student participants, “graduate education” included master’s degrees or equivalents (e.g., Master of Business

Administration [MBA], Master of Social Work [MSW]), doctoral degrees, and terminal, professional degrees or equivalents (e.g., law and medical degrees).

### **Chapter One Summary**

First-generation college students are a special population in higher education given that they not only must manage the universal challenges of college but must also negotiate the oft rough eddies of being “first.” As such, it is critical that educators understand more fully the nature and needs of first-generation college students as they progress to and through higher education. Using NLSF data, this study endeavored to provide some of this understanding by attempting to examine the factors that contribute undergraduate persistence and graduate educational aspirations for first-generation college students attending elite institutions. The following chapter will address the literature characterizing first-generation students as well as the general scholarship on college environments and involvements, persistence and college impact, and educational aspirations in the context of the study’s theoretical and conceptual frameworks.

## **Chapter Two: Review of the Literature**

The following literature review will provide context for this study and illuminate the rationale for the research questions posed. The review will open with a brief discussion of the multi-faceted conceptual framework guiding this study and then progress to an examination of the scholarship highlighting the background characteristics of first-generation college students. The review will then engage a broader discussion of research addressing intra- and extra-institutional environments as well as undergraduate persistence and aspirations for graduate credentials. Relevant literature focusing on first-generation students' intersection with the environments and college outcomes of interest for this study will be woven throughout the broader discussion.

### **Conceptual Framework**

Given the uniqueness of first-generation college students and the multiple contexts that may shape their undergraduate experiences, the conceptual framework for this study was bolstered by four theoretical pillars: Astin's (1970; 1993) Inputs-Environments-Outcomes model, Astin's (1984, 1993, 1996) theory of involvement, Bean and Metzner's (1985) Non-Traditional Undergraduate Student Attrition model, and Bourdieu's (1977) concepts of cultural capital and habitus. Rationale for the selection of these models and theories follows.

**Astin's (1970, 1993) Inputs-Environments-Outcomes model.** Astin's (1970, 1993) Inputs-Environments-Outcomes (i.e., I-E-O) model represented a cornerstone of this study's conceptual framework in that it provided context for how each of the study variables was analyzed. The fundamental purpose of the I-E-O model, as described by Astin (1993), is to determine how/if students grow or change given exposure to various

college environments. The model's component parts (i.e., inputs, environments, and outcomes) represent the student's developmental condition before, during, and after college. As such, any subsequent student changes or growth can be "determined by comparing outcome characteristics with input characteristics" (Astin, 1993, p. 7). Model "inputs" refer to student characteristics at the time of his/her entry to college while "environments" refer to the various people and experiences to whom/which the student is exposed during college. The final model component, "outcomes," refers to the student's characteristics after exposure to various environments. Given its focus on the before, during, and after, the I-E-O model provides practitioners and policymakers with key details regarding the value of certain environments relative to desired outcomes.

As conveyed in Figure 1, for the purposes of this study, the I-E-O "inputs," or student background characteristics, included race, gender, generational status in the U.S., pre-college annual household income, pre-college academic aptitude, sibling postsecondary attainment, pre-college educational aspirations, and frequency of pre-college engagement in cultural capital activities. These inputs were chosen based on the literature indicating that these are salient areas in which first-generation students may differ from non-first-generation students (Chen, 2005; Choy, 2001; Hahs-Vaughn, 2004; Hertel, 2002; Jenkins, 2007; Pascarella et al., 2004; Saenz et al., 2007; Somers, Woodhouse, & Cofer, 2004; Terenzini et al., 1996). With regard to the environments of interest, both on- and off-campus involvements, including student, faculty, and family-based interactions, were considered. Family-based involvements were examined given the aforementioned importance of home life for many first-generation students. Additionally, the nature of first-generation students' interactions with faculty and/or other

students was of particular interest given that, despite the abundance of literature that points to student engagement with peers and faculty as critical in influencing student outcomes (Astin, 1993; Tinto, 1987; 1993; Pascarella & Terenzini, 1991, 2005; Weidman, 1989), relatively few studies (e.g., Sherlin, 2002; Pascarella et al.) highlight first-generation college students.

In alignment with Astin's (1970,1993) I-E-O framework, two outcomes were examined in this study: a) first-generation college students' undergraduate persistence (i.e., undergraduate attainment), and b) first-generation college students' graduate educational aspirations. Undergraduate persistence was selected as an outcome because it is often cited as problematic for first-generation students given their backgrounds and adjustment to college (Brown & Burkhardt, 1999; Bui, 2002; Terenzini et al., 1996), yet, limited empirical studies explore first-generation status and persistence (per Lohfink & Paulsen, 2005; Sherlin, 2002). Similarly, graduate educational aspirations were examined because, while first-generation students' undergraduate educational aspirations have been discussed broadly (Amelink, 2005; Engle et al., 2006; McCarron & Inkelas, 2006; Walpole, 2003), little has been said about these students' advanced degree ambitions—despite aspirations' standing as a legitimate college outcome (Astin, 1970).

**Astin's (1984, 1993, 1996) involvement theory.** As noted above, according to Astin (1996), student involvement “refers to the amount of time and physical and psychological energy that the students invest in the learning process” (p. 124) and is directly linked to a myriad positive student outcomes (e.g., Astin 1984, 1993; Pascarella et al., 1996; Kuh et al., 1991, 2005). Astin (1993) characterized involvement into two categories: a) bridge measures of involvement identified as the freshman entered college

(e.g., residence hall choice, major), and b) intermediate factors such as academic involvement, faculty involvement, involvement with peers, and work involvement. In *What Matters in College? Four Critical Years Revisited* (1993), Astin reported the results of a large, national study that followed 24,000 freshmen students for four years and confirmed that involvement, particularly interpersonal interaction, was “found to be a powerful means of enhancing almost all aspects of the ...student’s cognitive and affective development.” (p. 126). Astin also reported that elements of “non-involvement,” which removed students from campus (e.g., work obligations or home life and family responsibilities), negatively affected outcomes.

Thus, given the noted value of campus involvement, the implied consequences of non-campus involvement, and the “concentric” environments in which first-generation students may exist, involvement theory served as a centerpiece of this study’s examination of college impact. However, rather than examine involvement only from a campus perspective, this study extended involvement theory beyond the campus courtyards in an effort to be inclusive of the full first-generation college student experience—one not always bound solely to the institution.

**Bean and Metzner’s (1985) Non-Traditional Undergraduate Student Attrition Model.** For decades, Tinto’s (1987, 1993) Student Integration Model has provided a substantial blueprint for understanding student departure and persistence (Braxton, 2000); yet, this study’s examination of outcomes for first-generation college students was scaffolded by Bean and Metzner’s (1985) Non-Traditional Undergraduate Student Attrition Model. Bean and Metzner recognized that, while students cannot simplistically be dichotomized into “traditional” and “non-traditional” learners, they can



indeed “be differentiated on the basis of age, residence, and full- or part-time attendance, not to mention ethnicity, gender, or socioeconomic status” (p. 488). Thus, the Non-Traditional Undergraduate Student Attrition Model acknowledges the complexity of students and uses a more holistic lens in studying college impact.

This holistic lens is salient for the study of first-generation students given the diversity of this student group and the “non-traditional” ways in which these students might engage both campus and home environments when compared to non-first-generation peers. As noted earlier in this study, first-generation students may involve themselves in a limited fashion on campus, they may seek out more academic involvements, and/or they be drawn to home life because of the importance of family or home obligations. Bean and Metzner’s (1985) model was appropriate as a pillar of this study’s conceptual framework because it supports a more complete study of first-generation students by allowing for factors such as student background variables (e.g., age, high school performance, ethnicity, gender), academic variables (e.g., study habits, absenteeism, academic advising), *internal and external* environment variables (e.g., finances, family responsibilities), and, peripherally, social integration variables to determine relationships with psychosocial outcomes (e.g., satisfaction, stress), intent to leave, and persistence. Bean and Metzner’s inclusion of non-collegiate environmental factors (i.e., family life) is noteworthy and serves as a key differentiator for this model. The scholars’ conceptualization of external environments, some of which are included in Figure 1, was central to the development of the college impact model guiding this study.

In comparison to Bean and Metzner’s (1985) work, Tinto’s theory, while valuable, has, even in its revised state (i.e., 1993), minimized the importance of student

engagements external to the college environment (e.g., family, parents) that may play a significant role in the student's persistence (Cabrera, Nora, & Castañeda, 1993; Guiffrida, 2006; Rendón, Jalomo, & Nora, 2000). Given that this study endeavored to explore the contribution of both intra- and extra-institutional environments to first-generation students outcomes, Bean and Metzner's model was essential because it not only includes and reinforces the salient components of Astin's (1970, 1993) I-E-O framework (e.g., background variables, academic variables) but also respects the multidimensionality of first-generation students via the acknowledgement and inclusion of the total environment.

**Bourdieu's (1977) concepts of cultural capital and habitus.** As noted in chapter one, cultural capital can be defined as the "currency" earned through exposure to experiences inherent to an upwardly mobile home environment and contribute to an ease with the language of society (Jensen, 2004). Bourdieu (1977) asserted that cultural capital translated to the making of "habitus," a world of shared experiences and values emerging from the benefits of cultural capital (Perna, 2000). The brief profile of first-generation college students shared thus far highlights these students' potential feelings of "outsiderness" in higher education given their attenuated cultural capital, and, as a byproduct, a habitus incongruent with that of their non-first peers and, at times, the larger institution. Given this study's focus on the contribution of cultural capital to persistence and to graduate educational aspirations, Bourdieu's concepts of cultural capital and habitus provided an important lens with which to engage exploration.

### **First-Generation College Students: A Portrait**

In alignment with the conceptual framework, the following section will highlight the research focused on the unique background characteristics of first-generation college

students. The discussion will address students' pre-college factors such as student race/ethnicity, generational status in the U.S., age, gender, and family income and SES. Further, the review will underscore the relationship between student characteristics and the larger systemic issues, such as the manifestation of cultural capital, in the context of the college choice and transition process.

**Student background: The individual's story.**

*Racial and ethnic diversity and generational status in the U.S.* First-generation students differ from their non-first-generation peers in a range of pre-college characteristics. One primary difference is the racial/ethnic configurations of the two populations. Specifically, first-generation students are more likely than their non-first-peers to be students of color. In her 2005 study of first-generation college students at two- and four-year institutions, Chen (2005), using the data from NCES's National Education Longitudinal Study of 1988-2000 (NELS:88-00), found that students of color made up 36.0% of the first-generation group while they comprised 16.0% of the non-first-generation group. In their use of the NELS:88-00 data, McCarron and Inkelas (2006) reported consistent results: Students of color represented 32.9% of the first-generation sample as compared to 23.8% of the non-first-generation student sample.

While more limited to a four-year institution focus with smaller samples, Bui (2002), using UCLA data, and Somers et al. (2004), using NPSAS:95-96 data, also noted that first-generation students were more likely to be ethnic minorities. This finding held in a smaller, community college study conducted by Brown and Burkhardt (1999) who reported the same racial differences between first- and non-first-generation populations. While stratification of samples may make it difficult to assert the preponderance of one

racial/ethnic group over another, Horn and Nuñez's (2000), Horn and Nevill's (2006), and Choy's (2001) analysis of nationally-representative NCES data did unearth a more specific finding: First-generation college students were more likely to be African American and Latino/a.

In addition to the greater likelihood of being students of color, first-generation students may also be immigrants or children of immigrants (Fortuny et al., 2009; Larsen, 2004; Saenz, et al., 2007). In their examination of Cooperative Institutional Research Program (CIRP) survey trends for first-generation students culled in 2005, Saenz et al. found that 27.7% of non-U.S. citizens were likely to be first-generation students. Similarly, analyzing national and state findings from the American Community Survey, Fortuny et al. discovered that, in 2006, over a quarter of children of immigrants came from a family where neither parent had earned a high school credential, as compared to the 8.0% of children with U.S.-born parents.

***Age and gender.*** Though the focus of this study was on undergraduate first-generation college students likely under 24 years of age, it is important to note that a number of researchers have found that first-generation college students are likely to be older than their non-first peers. In a report based on the NPSAS:04, Horn and Nevill (2006) found that students whose parents had earned a high school diploma or less were more likely be aged 40 and over than students whose parents had higher levels of education. This finding corresponds with the work of Choy (2001) and Horn, Cataldi, and Sikora (2005) who, based on their analyses of NCES data, reported that students whose parents had lower levels of education were more likely to delay entry into higher education, thus, enrolling in college as older, adult students.

In addition to potentially being older students, first-generation students are more likely to be female. In a recent CIRP-based study exploring first-generation student trends at four-year institutions, Saenz et al. (2007) found that 16.9% of all women were first-generation students as compared to 14.7% of all men. Saenz et al.'s finding corresponds with Nuñez and Cuccaro-Alamin's (1998) earlier study for which the researchers used data from NCES's 1989–90 Beginning Postsecondary Longitudinal Study (BPS:90/94) to confirm that first-generation college students were more likely to be female than male (57.0% and 51.0%, respectively). In a later and more recent study, Horn and Nevill (2006) also noted that first-generation students were more likely to be women than students whose parents had a bachelor's degree.

***Family income and socioeconomic status.*** Recent data from the U.S. Bureau of Labor Statistics (2011) noted that, in 2010, individuals possessing a bachelor's degree earned 65% more than those holding only a high school diploma. Yet, by definition, the parents of first-generation college students did not earn a bachelor's degree, and thus, one can draw the reasonable conclusion that family incomes for first-generation students may be lower than those of their non-first peers. In fact, in 1996, Terenzini et al. published a study on the characteristics of 825 first-generation students using National Center on Postsecondary Teaching, Learning, and Assessment (NCTLA) data. Though the sample was relatively small and racially dichotomized (i.e., Black/White), Terenzini et al. found that one of largest differences between first-and non-first-generation students was family income, with first-generation students at the disadvantage.

In alignment with Terenzini et al. (1996), Jenkins (2007), in a comprehensive study of first-generation student demographics also noted that these students were much

more likely to be poor than their non-first-counterparts. While Jenkins's sample was modest in size (i.e., 71 first-generation students), his findings were validated by Choy's (2001) national study in which she reported that 51.0% of parents of first-generation, 1992 high school graduates had annual incomes of less than \$25,000. Similarly, a more recent study by Murphy and Hicks (2003), surveyed 133 first-generation students attending a public four-year institution and found that nearly 50.0% of students with family incomes below \$25,000 had parents with no college experience. McCarron and Inkelas's (2006) findings from analysis of NELS:88-00 data, aligned with those of Murphy and Hicks; they noted that more first-generation college students fell into the lowest SES quartile (38.7%) than "non-first" students (27.6%). Saenz et al.'s (2007) study of first-generation student trends validated all of the findings discussed above: The authors shared that only half of first-generation students entering college in 2005 reported an annual family income at or higher than \$40,000.

***Intersections.*** This discussion of first-generation students' individual characteristics is not intended simply to deliver a litany of demographic facts and figures, but it is meant to emphasize the point that first-generation students' background variables play a key role in the larger, systemic issues factoring into their higher education journey. Perez and McDonough (2008) noted that "factors such as race, socioeconomic status (SES), college generational status, and gender influence access to resources and the college selection decision that students make..." (p. 250). These factors, embroiled with cultural capital, can contribute to or detract from the ability of students and their families to make college a reality. Bowen, Chingos, and McPherson (2009), in discussing college preparation, observed that "...problems of 'preparedness' have their roots in family

circumstances and educational deficits that are evident both in early childhood years and in high school” (p. 6). These authors’ contributions suggest that cultural capital plays a significant role in how first-generation students and their families prepare for and experience the college choice, transition, and college-going process. In the following section, the role of cultural capital will be explored more fully in the context of first-generation students’ journey to and through higher education.

**Student background in the context of higher education: The cultural capital story.** Though cultural capital is “symbolic,” Berger (2000) asserted that “students with higher levels of cultural capital are more likely to persist, across all types of institutions, than are students with less access to cultural capital” (p. 114). This persistence is attributable to the social “currency” provided by familial status that equips students with the “know how” to navigate the process of college choice, the expectations of transition to college, and the process of creating and sustaining the networks and connections for success (Jehangir, 2010; Jensen, 2004). Based on discussions in chapter one, first-generation students’ economic circumstances and potential racial/ethnic/generational marginalization paired with constraints in parental education limit the cultural capital available for college-going dispositions, exploration, and eventual enrollment.

In an effort to understand this role of cultural capital in the higher education journey of first-generation college students and its interplay with student backgrounds, this study examined the first-generation pre-college period via the “three-stage” college choice model proposed by Hossler and Gallagher (1987). This model identified the three stages students go through prior to making a college enrollment decision (i.e., predisposition, search, and choice) and asserted that student background characteristics

(e.g., parental income and education, parental attitudes about college, family support, and high school academic performance) play a significant role in each stage. Given the holistic nature of this model, it provided a helpful blueprint for discussing the student's choice process in the context of more systemic issues.

***College predisposition, search and choice and the role of cultural capital.***

*Predisposition.* Hossler and Gallagher (1987) noted that the predisposition stage was characterized by the intermingling of student characteristics, college/school characteristics, the influence of significant others, and the student's educational activities in the development of the student's dispositions (i.e., aspirations) toward attending college. Hossler et al. (1999) asserted that cultural and other forms of capital are evidenced in the role parents play in shaping the educational aspirations of their children. Exploring the issue of parental education and students' postsecondary aspirations, Spera, Wentzel, and Matto (2009) surveyed nearly 14,000 parents of public middle and high school students and discovered that aspirations for postsecondary education (both undergraduate and graduate) increased as a function of parental education. In alignment with Spera et al., Horn and Nuñez (2000), using NELS:88-00 data, sampled a cohort of eighth grade, first-generation students and reported that not only were first-generation students' aspirations lower than those of non-first peers but also that, as parental education decreased, students' aspirations beyond secondary schooling decreased. Similarly, Hossler and Stage (1992), via analysis of nearly 2,500 ninth graders, discovered that parents' combined educational level related to students' postsecondary aspirations: More parental education corresponded to higher educational aspirations. Hossler and Stage's discovery, as well as the other aspiration-focused findings discussed



above, suggests that parents' limited educational attainments may translate into less college knowledge and, thus, lower aspirations held by their children.

In addition to the development of aspirations in the predisposition stage, planning for college in the context of academic preparation may also be a consideration.

McDonough (2004) noted that students' development of college awareness and aspirations must begin in the middle school years and, as such, goes hand in hand with selection of "gate-keeping" high school coursework that will best prepare students for college. Similarly, Cabrera and La Nasa (2001) asserted that a high school student's likelihood of continuing on to higher education hinges on a number of essential tasks, with the first being the acquisition of at least minimal college qualifications.

Interestingly, however, Berkner and Chavez (1997) analyzed NELS:88-00 data with the intent to examine access to postsecondary education of 1992 high school graduates and found that high school students whose parents had lower levels of income and education could still attend four-year institutions at the same rate as students with higher family incomes if they presented the appropriate scores on coursework, entrance exams, etc.

Adelman (2006), also using NELS:88-00 data, further underscored this point by reporting that students' high school curriculum still counted the most in providing the thrust toward earning a bachelor's degree. In agreement with Adelman, Astin and Oseguera (2005), in their study of CIRP data for nearly 60,000 students at 262 institutions, found that students who entered college with "A" averages were more than four times as likely to complete their degrees as students who entered with "C" averages or less.

Yet, with regard to college readiness in the context of appropriate pre-college curriculum, Davis (2010) noted that first-generation students are often pinned with a

“lack of sophistication about K-12 education that carries over into the postsecondary environment” (p. 174). Interestingly, Saenz et al. (2007) found that the gap between first-generation students and their peers in the time spent studying in high school, academic self-confidence, and average high school grades has widened over the past few decades. The authors reported that, in 2005, 59.1% of first-generation students reported a “B+” average or better in high school compared with 70.0% of their non-first peers. Further, Saenz et al. found that, while SAT scores have increased for both non-first-generation and first-generation students since 1971, first-generation students’ scores as of 2005 were still lower than those of their non-first peers. In alignment with Saenz et al., Warburton et al. (2001) discovered that, compared with their non-first-peers, first-generation students were less likely to have taken standardized entry tests and rigorous coursework while in high school. Uncovering similar results, in their study of 921 first-generation students at a single Midwestern institution, Martinez, Sher, Krull, and Wood (2009) reported that first-generation students, while earning higher high school class ranks than their non-first peers, had lower ACT scores than their peers. Given the findings shared above, research suggests that first-generation students may not be as aware of and/or robustly prepared for the academic requirements of college.

A scan of the college preparation difficulties of first-generation students summarized above may easily lead some to question the intellectual abilities of these students. However, as Green (2006) offered, innate ability can often be neutralized in the face of larger systemic issues. While Cabrera and La Nasa (2001) affirmed that “planning for college as early as the eighth grade and having parents involved...are key factors that increase the likelihood of securing minimal college qualifications by the end

of the senior year” (p. 137), for first-generation students, limited cultural capital and the resulting habitus may mediate parental involvement and support. As Acker-Ball (2007) observed, “parental involvement and knowledge of practices that allow high-SES students access to college, such as SAT courses, college prep courses and on-campus visits are practices that demonstrate higher forms of cultural capital” (p. 56). The parents of first-generation students, given the intersections of parental education, income, race, and other social factors shaping their habitus, may not be able to capitalize on the “college knowledge” (Vargas, 2004) inherent to parents of students hailing from less historically underserved populations. In fact, Rowan-Kenyon, Bell, and Perna (2008), while conducting case studies of 15 high schools (for a total 596 parent and student participants) across five states, found that, while parents shape college opportunity for their children, SES tempers parental involvement. Thus, for first-generation students, “parental involvement” could have a different look and feel than for “non-first” students.

Elaborating on the “look and feel” of parental involvement, Cabrera and La Nasa (2001) noted that pre-college parental involvement could exist as motivation and encouragement or in terms of proactive participation such as assistance with college applications. For first-generation students in the predisposition process, parental involvement in the form of motivation and inspiration appears to be the most salient given that parents can impart the value of education but not necessarily be able to engage in the logistical, strategic processes necessary for enrollment. For example, Acker-Ball (2007), in a qualitative analysis of family influence on the college aspirations of nine first-generation college students, found that, regardless of family background and SES,

the majority of parents, while not all proactive in the college-going process, reinforced the importance of a college education.

In alignment with Acker-Ball, Cabrera and Padilla (2004), in interviews with two Mexican-American, first-generation Stanford University students, found that both students attributed their successes to their mothers' encouragement. However, the authors also found that parental aspirations were insufficient for success; college knowledge was also critical. Thus, the Stanford students noted the importance of counselors, tutors, and mentors as sources for college knowledge. Citing similar findings, Ceja (2006), interviewed 20 first-generation, low-income Chicana high school students and reported that, while parents aspired for their daughters to attain a college degree, parents lacked the necessary information to assist with applications and enrollment. Interestingly, the participants did cite older, college-going siblings as important to their own pursuits.

Yet, despite the propensity of parents of first-generation students to be less equipped to assist their children with the tactical elements of the predisposition stage of college choice, their contribution cannot be underestimated. In a recent study, Saenz et al. (2007), utilizing data collected through the CIRP Freshman Survey noted that, in 2005, first-generation students were more likely than their non-first peers (47.0% versus 43.0%, respectively) to report that they went to college as a result of parental encouragement to do so. Elaborating on this concept of encouragement, Gofen (2009), in interviews with 50 first-generation Israeli students exploring how students break the cycle of postsecondary non-attainment, found that all of the participants credited their families (or a member of the family) with making the "breakthrough" to higher education

possible. Specifically, Gofen found that families' attitudes toward education, expressions of love, and transmission of values had a significant role in the journey toward higher education. Further, the researcher discovered that older siblings played a critical role in the participants' path to college. Given the work of Gofen and other scholars discussed above, the role of predispositional parental involvement for first-generation students within the context of habitus and cultural capital becomes more discernible. The findings suggest that cultural capital has a substantial hand in shaping aspirations, pre-college preparation, and students' general disposition toward the pursuit of higher education.

*College search and choice.* The previous section focused on the role of cultural capital in students' predisposition toward college, particularly with regard to aspirations, academic preparation, and parental involvement. Yet, the degree of cultural capital possessed by families and their potential college students continues to play a role as individuals contemplate college search and choice and, thus, must be examined in an effort to understand fully the implications of first-generation status with regard to the undergraduate experience. Further, given the limited availability of scholarship addressing first-generation students' journey toward graduate studies, this exploration of baccalaureate college search and choice might provide helpful insight into the place of students' backgrounds in long-term actions and ambitions for advanced credentialing.

Hossler and Gallagher (1987) described the college search phase as the stage in which students gather information (e.g., financial aid, cost, academic programs) about potential college options, and they characterized the final "college choice" step as the narrowing down of college options, submission of application materials, and enrollment decision-making. However, Dumais and Ward (2009) observed that "first-generation

students come from families lacking institutionalized cultural capital (degrees and credentials); moreover, they do not have any hands-on experience with the college selection and application process” (p. 250). As such, akin to the predisposition stage with aspirations and college preparation, cultural capital may play a significant role in college search and choice as well, manifesting itself in the agents available to help students gather information and make an enrollment decision. This implication is evidenced in Pérez and McDonough’s (2008) research. Through interviews with over 100, primarily first-generation Latino/a high school juniors and seniors examining the college choice process, Pérez and McDonough discovered that students could not often rely on parents for guidance as they investigated college but found *themselves* informing their parents about the college process. Further, the authors noted that, given the limits of parental capital, students relied on siblings, peers, high school counselors, and other relatives for help with the postsecondary planning and application process.

In a deeper exploration of parental capital, Dumais and Ward (2009) analyzed NELS:88-00 data as well as the Postsecondary Education Transcript Study (PETS) to determine the levels of cultural capital possessed by first-generation students relative to their non-first peers. Operationalizing cultural capital as participation in the high arts and strategic interactions with gatekeepers in an effort to access educational information and resources, Dumais and Ward reported that family cultural capital, social class, and parental assistance with the college application process were associated with four-year college enrollment. Emerging from their research with findings similar to Dumais and Ward, Perna and Titus (2005), using NELS:88-00 data to explore the contribution of parental involvement to the formation of habitus and, thus, to choice, found that parental

involvement (i.e., discussions about education and monitoring of behavior) mattered. Specifically, the researchers discovered that students' odds of enrolling at either two- or four-year institutions increased as parental discussions about college increased. Interestingly, the researchers also reported that the proportion of students' friends planning to attend four-year institutions positively related to either two- or four-year enrollment. This finding by Perna and Titus suggests that the peer group may also play a significant role in the college-going habitus.

Habitus, as noted by Berger (2000), can be shaped by student backgrounds (particularly cultural capital) and can be a key determinant in students' expectations about college and, subsequently, students' choice of institutions. More simply, the perceptions of what is/is not important to students, as embedded in habitus, can play a central role in students' articulation of the factors essential for institutions to be most congruent with student needs. In the study of the factors that influenced college choice for first-generation students, a number of elements, including cost and distance from home, emerged as salient. For example, Saenz et al. (2007), in their CIRP-based study of four-year college entrants in 2005, found that first-generation students were more likely than non-first students to cite proximity to home as an important reason for choosing an institution. Further, the researchers noted that, while the importance of financial aid offers in college selection had increased for first- and non-first-generation students since 1971, financial assistance was still more important to first-generation college-goers than their non-first peers (41.4% versus 33.9%, respectively). Interestingly, Ohl-Gigliotti (2008) explored cost and financial aid in the context of parental involvement and knowledge networks via interviews with 12 parents of first-generation students. The

researcher found that, while parents planned to support their students financially in some way, they had not developed long-term funding plans for education. Ohl-Gigliotti surmised that the parents' lack of knowledge regarding college, given their own modest attainments, contributed directly to their modest plans.

For first-generation students, issues of financial planning in the college choice process combined with potential familial responsibilities and modest pre-college preparation, may lead to substantial differences in the types of institutions these students select. In her, nationally-representative study, Choy (2001) noted that, of the 47.0% of 1995-1996 beginning postsecondary students who were first-generation, 53.0% enrolled at two-year institutions and 34.0% enrolled at four-year institutions. In alignment with Choy, Horn and Nevill (2006) and Provasnik and Planty (2008) analyzed a collection of NCES data to develop a picture of community college attendance and reported that community colleges are more likely to enroll greater proportions of adult students, low-income students, and students of color than four-year institutions. Provasnik and Planty further noted that students whose parents have lower levels of educational attainment may enroll in community colleges at higher rates than peers with more credentialed parents. These findings on the potential prevalence of first-generation students at community colleges suggests that elements of the pre-college habitus, including cultural capital, may pre-determine where students enroll despite student desires.

***First-generation college students and elite institutions.*** While the research addressed above noted that familial and economic reasons may lead first-generation students to more modestly priced institutions and community colleges, the focus of this study was on first-generation students enrolled at elite institutions. Thus, as a component



of the college search and choice discussion, a treatment of select literature on elites and the experiences of first-generation students at these institutions is warranted.

According to Carnevale and Rose (2003), institutional selectivity is generally determined on the basis of scores on standardized admissions exams, students' high school grade point averages and ranks, and the number of students accepted to the institution. In a review of *Barron's Profile of American Colleges* (2000) (as cited in Carnevale & Rose), the authors determined that students admitted to "most" and "highly" competitive institutions placed in the top 35.0% of their high school classes, reported high school grade point averages of "B" or better, scored 1240 or higher on the SAT I or above 27 on the ACT, and only comprised 50.0% of those who applied. Given these parameters, the first-year cohorts at these top tier schools only represented about 10.0% of the nation's freshman college class (to include two- and four-year institutions).

Using two NCES data sets (i.e., National Education Longitudinal Study of 1988 (NELS:88) and the High School and Beyond study (HS&B 80:92)), Carnevale and Rose (2003) explored the students comprising these top tier cohorts. The researchers found that African American/Black and Hispanic or Latino/a students as well as lower income students were substantially underrepresented in the 1995 and 1997 freshman classes. Astin and Oseguera (2004), in a CIRP-based trends analysis of admission to selective institutions from 1971-2000, found similar results with regard to income. The researchers uncovered a steady rise in the representation of high-income students over time, a decrease in the representation of middle-income students, and little change for lower income students. Additionally, with regard to parental education, Astin and Oseguera reported that, from 1971-2000, students from the well-educated families

sustained high rates of access to selective institutions, while first-generation students' access diminished.

While they must be interpreted carefully given their age, the results highlighted above with regard to differences in student access by income and parental education do underscore the potential stratification and further compounding of social inequities promulgated by elite institutions. With access to elite institutions comes exposure to a wealth of resources and opportunities, which can become currency for advancement later in life. As noted by Carnevale and Rose (2003), selective colleges may spend four times more per student than less selective institutions, they may be better equipped to support students academically and, thus, more readily ensure long-term persistence, and elite institutions may be able to open doors to graduate and advanced studies and highly desirable, lucrative careers more easily. Thus, the benefits of attending elite institutions persist beyond the resources and experiences available during college. From a social reproduction perspective (Berger, 2000; Bourdieu, 1977), for those who can attend, an elite education may re-enforce or revise students' cultural capital and life possibilities.

Examining the benefits of attending elite institutions becomes especially important in the context of understanding the experience of first-generation students at these colleges. One such benefit, graduation, was recently studied by Small and Winship (2006) using data emerging from the College and Beyond study focused on the entering, 1989 cohort at 27 elite institutions. While a bit dated and not limited to first-generation students, the researchers' findings indicated that institutional selectivity greatly improved graduation rates for African American/Black students. Interestingly, Small and Winship suggested that high institutional expectations of student performance played a role in this

outcome. Akin to the work of Small and Winship, Melguizo (2008) used a sample of 3,000, 1992 high school graduates from the NELS:88 data set to examine the impact of institutional type on student graduation. The researcher found that not only did graduation rates of all students increase as institutional selectivity increased, but also that, while 45.0% of African Americans/Black and Hispanic or Latino/a students completed college at nonselective institutions, 92.0% did so at highly selective colleges and universities. Melguizo also noted, however, that despite the robust graduation rates, African Americans/Black and Hispanic or Latino/a students were underrepresented at selective institutions when compared with Asian and Caucasian/White students. While Melguizo's work and that of Small and Winship was not explicitly focused on first-generation students, given that a large proportion of first-generation college students identify as students of color, the findings suggest that elite institutions may make a difference in the long-term persistence of first-generation college students.

The work of Carnevale and Rose (2003), Small and Winship (2006), and Melguizo (2008) underscores the role that elite institutions may play in the undergraduate life-long outcomes of first-generation college students. Yet, little is known about how first-generation students who attend elite institutions differ from first-generation students who do not. One can speculate that strong preparation, family resources, exposure to a college-going habitus, involved parents and high school counselors, and aggressive college admissions offices play a role, yet, is there something intrinsic to the student such as a strong sense of self-efficacy? A recent study by Hayden (2008) touches on the differentiators between first-generation and non-first-generation students attending elite institutions. Using data from the National Longitudinal Survey of Freshmen (NLSF),

Hayden explored the relationship between parental capital (i.e., human, social, and cultural) and graduate aspirations for 267 first-generation college students. While she found that parental capital was only slightly related to aspirations, the researcher discovered that there was no difference in graduate aspirations between first- and non-first-generation students. In alignment with Hayden's own expositions, this finding suggests that the first-generation college students who are drawn to elite institutions and/or are selected by elite institutions possess a sense of self-efficacy and drive that, despite the potential for more humble beginnings, puts them on par with non-first-peers.

***College transition and cultural capital.*** Berger (2000) noted that the college environment is comprised of three subsystems, to include "organizational" and the two subsystems which will be discussed in this section—"academic" and "social." Berger emphasized that the more congruent a student's habitus is with these subsystems, the more s/he will feel supported and, potentially, persist. Thus, the transition into the college environment, while not a component of the college choice process but certainly as important and worth exploring, reinforces the saliency of cultural capital and the pre-existence of the college knowledge that helps students decipher the comprehensive culture of college. Yet, for the first-generation student, congruence may be difficult to obtain and the transition disorienting. Davis (2010), in his rendering of "the first-generation student," made the following observation:

First-generation student status is not about the number of years a parent attended college or the number of academic units a parent accumulated. It is about being competent and comfortable navigating the higher-education landscape, about

growing up in a home environment that promotes the college and university culture. (p. 5)

In her analysis of the power of social class, Jensen (2004) noted that “professional middle class social style, language, and knowledge constitute a kind of social currency” (p. 177) that facilitates membership and mobility for those who have access to it. As reinforced by Davis (2010), first-generation students may not have this access. To this point, Davis (2010) noted that two core elements may define the first-generation student once s/he arrives on campus: a) Feelings of outsidership, and b) The struggle to straddle home and college cultures. With regard to Berger’s (2000) academic subsystem, modest college preparation (e.g., Davis, Saenz et al., 2007; Warburton et al., 2001), as potentially determined by parental/familial levels of cultural capital, may contribute to feelings of “outsidership” with regard to college requirements and academic demands. For example, Votruba (2007), in a study of college adjustment, surveyed nearly 300 students (49 of whom were first-generation) and found that first-generation status was associated with lower levels of academic adjustment. Along similar lines of research, Byrd and MacDonald (2005), in their phenomenological inquiry exploring the college readiness of eight, adult first-generation college students, found that students struggled with understanding the academic system of college. Respondents noted that, in addition to academic skills, essential skills in time management, focus, and self-advocacy were critical to navigating the “system.” Given these findings, it is important to note that these tools may not have been passed on by parents and/or high school counselors.

In addition to the academic dissonance experienced by first-generation students in their transition to college, feelings of familial dissonance and culture shock may also

develop as students attempt to embrace the social subsystem and upwardly mobile world of the college-going. Jengahir (2010) underscored this “divided consciousness” (p. 537) that emerges as first-generation students attempt to make sense of the norms and rituals embedded in the college culture while preserving their “home” identities. This divided consciousness, or “straddling” as noted by Davis (2010), may be particularly potent for first-generation students who, given the salience of ethnic, cultural, and/or racial identities, operate in multiple contexts (Rendón et al., 2000; Tierney, 1992).

In an attempt to understand the contexts in which first-generation students function, Roberts and Rosenwald (2001), examined this “converging of worlds” (Rendón et al., 2000, p. 137) via interviews with 15 first-generation college graduates and current undergraduates and found that many students had experienced feelings of guilt, confusion, and loss in the college transition. These feelings were attributable to the students’ attempts to reconcile the home habitus with that of the upwardly mobile college environment. Roberts and Rosenwald observed that “outdoing the previous generation both financially and educationally can bring about disruption in relations with family and friends, as well as the discomfort and uncertainty of moving into an alien world” (p. 92). London (1996) described first-generation students’ transition into this alien world as the “shedding of one’s social identity and the taking on of another” (p. 12). Thus, while first-generation students successfully enroll in college, the work of these pioneers is not done; the interplay between cultural capital, habitus, and institutional congruence provides these learners with a continued systemic challenge on their road to success.

***Summary: The first-generation portrait.*** Davis (2010) noted that one of the core elements associated with being a first-generation student is the determination to succeed.

Yet, for these pioneers, background characteristics, particularly cultural capital and habitus, may mediate determination and factor into educational successes. This portrait of first-generation learners, which is by no means exhaustive, has provided a glimpse into the pre-college elements that may contribute to college outcomes. Yet, first-generation outcomes do not hinge on backgrounds alone. In the following section, Astin's (1993) I-E-O model and his (1984, 1993, 1996) involvement theory will scaffold a discussion of the intra- and extra-institutional environments first-generation students engage on the higher education journey. Relevant literature on specific involvements and relationships in on- and off-campus arenas, per the salient variables posed in the research questions, will be explored. Scholarship specific to first-generation college students and particular involvements will be interwoven as the current gaps in literature permit.

### **Intra- and Extra-Institutional Environments and Student Involvement**

In chapter one, intra-institutional environments and involvements were defined as those bound by the campus "walls" while extra-institutional elements were characterized as those pursuits associated with a first-generation students' home or non-campus life. Additionally, environments that could be situated either on- or off-campus (i.e., employment and living arrangements) were also clarified. Following, literature highlighting the intra-institutional involvements associated with peer interaction, co-curricular activities, and faculty interactions and mentoring will be explored. Further, research exploring extra-institutional engagement with parents and elements of family support will be addressed. Finally, scholarship focused on the intra/extra-institutional elements of employment and student residence will be examined. Literature relevant to the first-generation student will be incorporated throughout the discussion.

**Intra-institutional involvements.** Astin (1970) asserted that “The college environment refers to those aspects of the higher educational institution that are capable of affecting the student” (p. 225). He noted that these aspects could be quite numerous and include administrative policies and practices, curriculum, facilities, pedagogy, and peer relationships. One environmental aspect especially well-studied and documented by Astin (1984, 1993, 1996) in later research was the concept of student involvement in college. Despite the fact that Astin’s (1993) original research was based on a conventional view of the undergraduate student as White, traditionally-aged, residential, and enrolled full-time, his findings were supported by Pascarella and Terenzini (1991, 2005) who, in their meta-analyses, noted that “A large part of the impact of college is determined by the extent and content of one’s interactions with major agents of socialization on campus...” (p. 620). As such, in the following pages, campus socialization will be discussed in the context of peer/faculty interaction, co-curricular involvement, and mentorship.

***Student-student interaction and co-curricular involvement.*** Historically, researchers have asserted the benefits of involvement in the form of student-student (i.e., peer) interaction on the psychosocial and cognitive development of college students (Astin, 1993; Kuh et al., 1991, 2005; Newcomb, 1962; Pascarella & Terenzini, 1991, 2005; Pascarella et al., 1996a; Tinto, 1993; Ullah & Wilson, 2007). In fact, Astin asserts that “the student’s peer group is the single most potent source of influence on growth and development during the undergraduate years” (p. 398). Several studies support this assertion. For example, Bank, Slavings, and Biddle (1990), in a study of 1,240 entering freshmen, found that parents and peers had the most profound influence on student



persistence. Also validating the power of peers, analysis of nearly 17,000 student responses regarding curricular peer interactions gleaned from a recent administration of the National Survey of Student Engagement (NSSE) (NSSE, 2010) confirmed that “students who engaged in learning activities with their peers were more likely to participate in other effective educational practices and had more positive views of the campus learning environment” (p. 9).

In a similar vein to the findings discussed above, Antonio (2004), via a mixed methods study of nearly 400 students, reported that peer group effects as part of the “microlevel interpersonal environments of a college campus are important sites of influence on socialization and student development” (p. 463). Antonio’s work, though based on a modest student sample size, is particularly significant in that it raised important questions about the value of diversity at the peer level and diversity’s influence on students’ sense of ability and self-concept. Pascarella and Terenzini (2005) echoed this sentiment in their meta-analysis of research on peer groups, asserting that

Perceptions of racial-ethnic prejudice or tension, particularly when seen in students’ peers, have statistically significant and negative net effects on minority students’ transition and adjustment to college as well as on their sense of belonging and attachment to their institutions. (p. 420)

Elaborating on Pascarella and Terenzini’s (2005) observation, Hurtado, Carter, and Spuler (1996), in a study of 203 high-achieving, Latino/a college students, reported that college peers provided the most support, and this support was closely tied to college adjustment. While the sample size for this study was small, the researchers did find that college adjustment, in turn, helped students negotiate the new college culture while

maintaining healthy family ties. Swenson, Nordstrom, and Hiester (2008), also focusing on college adjustment, studied the peer relationships of 271 first-year students and found that, while maintaining high school friendships was important for the college transition, establishing close relationships with college friends was beneficial to academic, social, and emotional college adjustment outcomes. Kuh et al. (2005) also touted the broad range of benefits associated with peer interactions discovered via the researchers' analysis of 20, four-year colleges selected for the Documenting Effective Educational Practices (DEEP) project. The DEEP project, highlighting institutions that promoted student success as quantified by student graduation rates and high scores on the NSSE, reinforced that "By becoming involved with people with similar interests inside and outside the classroom, students develop support networks that are instrumental to helping them deal effectively with academic and social challenges" (Kuh et al., p. 260).

One forum critical to the development of the "networks" identified by Kuh et al. (2005) as part of the DEEP project is co-curricular activities. In exploring the relationship between co-curricular involvement and psychosocial development, Foubert and Grainger (2006) conducted a single institution, cross-sectional study of 407 students during which they discovered that students who were more involved in co-curricular activities (i.e., student organizations) reported more growth in areas such as "establishing and clarifying purpose" and "life management." Interestingly, in alignment with Harper and Quayle's (2009) assertion that true engagement only comes from active participation, Foubert and Grainger discovered that students who "joined or led organizations reported more development than those who just attended a meeting" (p. 166). In a more recent study, Elliott (2009) also explored the link between student development and

involvement in formal, college-sponsored co-curricular activities (i.e., student government, community service programs, and athletics) for nearly 100 two-year students. The author found that not only were involved students more self-confident and better able to manage emotions, but they also earned higher GPAs and reported more satisfaction with college.

Turning to an explicit focus on the importance of co-curricular involvement for diverse populations, Fischer (2007) found that for students of color, particularly Asian and Black students, greater involvement in extracurricular activities diminished the likelihood of attrition by at least 83.0%. Additionally, Huang and Chang (2004), in their study of College Experiences Survey (CES) results for over 600 juniors at 14 higher education institutions in Taiwan, noted that gains in self-confidence and interpersonal skills were associated with co-curricular involvement (e.g., student clubs, departmental programs) and that co-curricular involvement was not a detriment to academic involvement. In keeping with the “detriment” theme, Baker (2008), in her study of the college involvements of 1,097 Black and Latino students, found that, while students benefitted academically from organizational involvement, the level and breadth of benefit varied dramatically by race and type of organization. Specifically, political organizations were beneficial to most students, but Greek letter organizations could be detrimental to student outcomes. Seemingly, Baker’s findings, as supported by Terenzini et al.’s (1996a) observation, confirm that not all forms of co-curricular involvement may be equally advantageous and positive for all students.

*First-generation college students and involvement with peers.* While the general literature on the relationship between peer interactions (to include co-curricular activities)

and student outcomes is abundant, the same cannot be said for such explorations focusing specifically on first-generation college students. However, the few studies that have been conducted provide a helpful snapshot. For example, in her study of the impact of faculty, staff, and peer interactions on the retention of 617 community college students (76.0% of whom were first-generation), Ewers (2007) found that higher frequencies of interaction with fellow students outside of the classroom were positively associated with students' likelihood to persist. Along similar lines, Koch (2008), in a qualitative study of six first-generation students who left college before the second year, found that persistence was threatened by lack of involvement in co-curricular activities (e.g., clubs, organizations) and a dearth of campus friendships. Validating Koch's findings, Nuñez and Cuccaro-Alamin (1998), using nationally representative NCES data, found that first-generation students were less involved and socially integrated as defined by involvement in school clubs, interaction with faculty outside of class, and outings with friends.

In alignment with Nuñez and Cuccaro-Alamin's (1998) findings, Asrat (2007), via a study of 211 first-generation student responses to the spring 2005 administration of the NSSE, reported that, while students found the campus supportive, they reported less involvement with co-curricular programs. Saenz et al. (2007) confirmed first-generation college students' potentially limited campus involvement in their CIRP-based study. The researchers reported that only 22.0% of first-generation college students noted that there was a very good chance of participating in volunteer/community service work. Given the portrait of first-generation students detailed earlier in this chapter, it is no surprise that the intersection of competing demands and college comfort might curtail involvement. Yet,

findings such as those presented by Ewers (2007) provide evidence that first-generation college students can benefit from peer interactions as much as their non-first peers.

***Student-faculty interaction and mentoring.*** In addition to involvement in the form of peer interactions, research indicates that student-faculty interaction plays a significant role in the achievement of student outcomes such as persistence, attainment, institutional fit, and overall sense of well-being (Astin, 1993; Kuh et al., 1991, 2005; Pascarella & Terenzini, 1991, 2005; Sax et al., 2005; Svanum & Bigatti, 2009). A number of scholars have explored the “how” of faculty interaction more deeply in an effort to understand the specifics of the impact. For example, Settle (2005), using data from NCES’s BPS:96/98 found that, for his sample of 3,506 two-year and four-year students, “social contact with faculty members outside of the classroom” was perfectly associated with year-to-year persistence. Affirming Settle’s findings, Ullah and Wilson (2007), analyzing data from single institution NSSE data, reported that students’ relationships with faculty had a positive influence on students’ overall academic achievement—as measured by cumulative GPA. Similarly, in their large-scale, longitudinal study using the College Student Experiences Questionnaire (CSEQ), Kuh and Hu (2001) examined the nature and impact of student-faculty interaction on students’ personal development and learning. Overall, the researchers found that students who interacted with faculty reported higher gains, but Kuh and Hu also discovered that academically-focused interactions were more valuable than social interactions.

In alignment with Kuh and Hu (2001), Cox and Orehovec (2007) developed a typology of faculty-student interactions based on their research in a residential college at a public university. The scholars discovered that, of the five types of student-faculty

interactions (i.e., academically-oriented functional interactions, personal interactions unrelated to academics, incidental interactions, disengagement, and mentoring), academically-oriented functional interactions outside of class were most important. Akin to Cox and Orehovec's discovery, Kim and Sax (2009) utilized cross-sectional data collected from nearly 60,000 students who participated in the 2006 University of California Undergraduate Experience Survey (UCUES) and found that course-related faculty interaction resulted in students of all SES levels obtaining higher college GPAs. Further, the researchers determined that all students were led to aspire to more advanced degrees, achieve grander gains in critical thinking and communication skills, and be more satisfied with college overall. Using a similarly sized sample, Umbach and Wawrzynski (2005), by culling NSSE responses from freshman, seniors, and faculty at 137 schools surveyed in spring 2003, found a positive relationship between gains in college and course-related interactions with faculty. Given its cross-sectional nature, this study emphasized the long-term contribution of student-faculty interaction to student outcomes.

While the student-faculty interaction studies discussed thus far corroborate the potency of these relationships most explicitly with regard to academic gains and general satisfaction with college, research indicates that these interactions could also be associated with students' sense of feeling supported and connected. As evidence, in their study, Umbach and Wawrzynski's (2005) indicated that, for seniors especially, student-faculty interactions (though course-related) were positively related to perceptions of a supportive campus environment, interpersonal support, and support for learning. Support was a theme that also emerged in Komarraju, Musulkin, and Bhattacharya's (2010) study of the most salient aspects of student-faculty interaction among 242 freshmen and

sophomores at a public institution. The researchers found that “Students who perceive their faculty members as being approachable, respectful, and available for frequent interactions outside the classroom are more likely to report being confident of their skills and being motivated, both intrinsically and extrinsically” (p. 339).

Also focusing on this concept of support engendered by faculty interaction, Jackson, Smith, and Hill (2003) studied the impact of faculty interaction on the development of Native American students. They reported that a good relationship with faculty had a positive effect on adjustment and persistence. These relationships were found to be particularly important for building connections to campus for these students of color. Elaborating on the experiences of students of color, Hernandez (2000), studying the impact of involvement with faculty on Latino/a students, reported that retention increased when faculty attended to students and cared for their well-being. In an analysis of the impact of faculty contact across racial groups, Lundberg and Schreiner (2004) via a sample of 4,501 students who responded to the CSEQ between 1998 and 2001, found that “quality of relationships with faculty was the only variable that significantly predicted learning for all the racial/ethnic groups” (p. 555) and was the strongest predictor for students of color. Similarly, in her focus on racial/ethnic background, involvement, and outcomes, Fischer (2007), focusing on selective institutions, noted that increased connections to professors was related to higher grades for all student racial groups.

The research discussed thus far suggests that, across a number of factors including institutional type, student racial/ethnic identity, and students’ academic class standing, faculty connections inside and outside of the classroom have proven critical to student development and success. However, given that, according to Pascarella and Terenzini

(1995), about 80.0% of students' waking hours are spent outside of the classroom, interaction with faculty members cannot be relegated to the bounds of contact hours. Kuh et al. (2005) observed that "Students learn firsthand how to think about and solve practical problems by interacting with faculty inside and outside of classrooms. As a result, teachers become role models, mentors, and guides for lifelong learning" (p. 207). While this concept of "mentoring" has proven to have significant impact on undergraduate student outcomes such as GPA and persistence (Crisp & Cruz, 2009), in their study of the most common types of student-faculty interaction, Cox and Orehovec (2007) noted that mentoring was the most infrequent type encountered.

This mentoring "scarcity" could, potentially, be related to the fact that the concept of mentorship is still undefined and/or misarticulated on college campuses. Crisp and Cruz (2009), in their comprehensive literature review on the state of college student mentoring from 1990 to 2007, observed that, unfortunately, still little is empirically known about how mentoring works. However, the authors settled on an understanding that mentoring should involve a focus on the development of the individual, an aim to provide support, and a nature that is personal and reciprocal. To advance this "definition," in a study with 200 community college students, Nora and Crisp (2007), found that three specific latent variables emerged as comprising mentoring experiences for the students: a) educational/career goal-setting and appraisal, b) emotional and psychological support, and c) academic subject knowledge support aimed at advancing students' knowledge relevant to their chosen fields.

Based on broad interpretations of mentoring noted above, a number of studies have affirmed the value of mentoring relationships. For example, in their 11-year



analysis of the effects of faculty mentoring relationships on 339 undergraduate students, Campbell and Campbell (2007) found that, at the end of year one, mentored students had a higher GPA and a higher retention rate than the control group. While eleventh year data showed a neutralization of these outcomes, the long-term analysis did reveal that mentored students remained on campus for graduate study. Additionally, favorable findings with regard to faculty mentoring were also discovered by Mangold, Bean, Adams, Schwab, and Lynch (2002) who, via a longitudinal study of nearly 2,000 students in a freshmen block registration and mentoring program, found that the faculty mentoring program had a positive impact on graduation and persistence.

In addition to examining the role of faculty mentors alone, a number of studies have broadened the landscape. For example, in a recent study of over 36,000 students participating in the Multi-Institutional Study of Leadership (MSL), Campbell, Smith, Dugan, and Komives (in press) found that students' socially responsible leadership capacities were significantly influenced not only by the nature of the mentoring relationship, but also by the type of mentor. The researchers found that mentors committed to students' personal development shaped leadership most significantly and, interestingly, that student affairs staff emerged as more potent than faculty mentors with regard to personal development. Also exploring mentorship beyond faculty, Hu (2010) used survey data from over 300 participants in the Washington State Achievers (WSA) program and discovered that having a faculty/staff mentor was positively associated with persisting in college. Interestingly, Hu also found that persisting was positively related to the extent to which participants relied on mentors for support and encouragement and the importance that the students placed on mentoring. Relatedly, Hu reported that Hispanic,

more so than White students, turned to mentors for support and perceived the mentoring experiences to be important. This finding is especially important given the role that faculty/staff mentors can play in minimizing the potential marginality experienced by students of color on college campuses.

*First-generation college students and involvement with faculty.* As noted for the peer interaction literature, research focused on the contribution of faculty interaction to first-generation students' college outcomes is scarce. A few researchers have, however, shed some light on the relationship. Strayhorn (2010), for example, explored the influence of student-faculty interactions on 215 White undergraduate students' (49.0% of whom were first-generation) overall satisfaction with college while enrolled at a HBCU. Using data from the 2004-2005 CSEQ administration, the author found that faculty-student interactions such as working on research projects and discussing personal issues and career plans positively related to students' satisfaction with college. Kim and Sax (2009) found similar results with a state sample of 58,281 students (nearly 20.0% of which was comprised of first-generation students). These researchers reported that, for all SES levels, students who assisted faculty members with research were more likely to earn higher college GPAs and to aspire to higher degree attainments.

Yet, despite the promising findings above, results from the 2007 NSSE (NSSE, 2007) administration noted that first-generation students and transfer students were less likely than their peers to engage in activities such as research projects with faculty. Interestingly, in their national study, Nuñez and Cuccaro-Alamin (1998) found that first-generation students were also less likely to meet with faculty or advisors, attend career-related lectures, or discuss academic matters with faculty. In fact, a small, qualitative

study of four “working-class” first-generation students conducted by Longwell-Grice and Longwell-Grice (2008) concurred with Nuñez and Cuccaro-Alamin’s work. The researchers discovered that students were too intimidated to seek out faculty support, which left the students feeling unsupported by faculty and at risk for departure.

However, while first-generation students’ contact with faculty may be more modest than that of their peers, evidence of the influence of faculty members was reinforced in an earlier study by Tinto (1997) who, noting that the classroom potentially represented the only arena where faculty and commuter/non-traditional students could become involved, examined how learning communities contributed to persistence. Analyzing a sample of 121 students, 27.0% of which was comprised of first-generation, Tinto reported that learning community students viewed faculty, students, the college, and their own involvement more positively and persisted to the following term at a higher rate than comparison peers. In alignment with both Strayhorn’s (2010) and Tinto’s findings, Barnett (2006), surveyed 300 community college students, a third of whom were first-generation college students, and determined that four validating faculty constructs contributed to students’ sense of integration and intent to persist: a) Feeling known and valued, b) Good instruction, c) Appreciation for diversity, and d) Mentoring.

With regard to mentoring, Hu and Ma (2010), in their study of over 300 scholarship recipients in the aforementioned WSA program, found that students with neither parent having a baccalaureate degree were less likely than peers with at least one college-educated parent to meet with their mentors and seek out encouragement. Interestingly, a similar theme emerged from Murphy and Hicks’ (2003) study of the educational expectations of 203 HBCU-attending students (133 of whom were first-

generation students). The researchers found that students who had at least one parent with a bachelor's degree spent more time meeting with faculty than their first-generation peers. These findings are reflective of the cultural capital discussion: First-generation students may not be comfortable approaching faculty because the understanding of how the college culture works with regard to these interactions is too modest.

**Extra-institutional involvement.** Astin (1993), in his study of 24,000 freshmen, found that various forms of “non-involvement” that removed the student from campus, such as work or home responsibilities, negatively affected outcomes and jeopardized persistence. Yet, per Reason's (2009) implied argument, “involvement” cannot be dichotomized or normed based on how students can/cannot engage the campus; student environments are more complex. As observed by Weidman (1989), “typical educational institutions are not encapsulated environments, it is reasonable to assume that performance in college may be affected by the student's ability to cope with problems at home and other community settings” (p. 300). However, despite the importance of non-college environments in the student's life, Stieha (2009) asserted that “vital relational connections that students have with family members” (p. 238) are often excluded from research. In an attempt to highlight these “relational connections,” the richness of students' lives, and the potential for much involvement outside the institutional gates, particularly with home-based family and friends, the following section will review the work of a number of scholars who have explored the topic of college student interactions with parents and students' perspectives on the concept of family support.

***Student-parent interactions and perceptions of family/parental support.*** Shoup, Gonyea, and Kuh (2009) noted that that research on the effects of student engagement

with parents and parental involvement during students' college experience has been limited. Yet, a few researchers have explored the student-parent relationship for the broader college-going population with, mostly, favorable findings. For example, results culled from the deployment of the 2007 NSSE (NSSE, 2007) highlighted that 70.0% of students surveyed communicated "very often" with at least one parent or guardian during the school year. The study also found that undergraduate students with parents who were in frequent contact (and who intervened frequently) reported higher levels of engagement, greater gains in college outcomes, and, despite lower grades, more satisfaction with college. With a similar focus on college outcomes, Wintre and Bowers (2007) examined the predictors of persistence for nearly 1,000 students (mostly female) at a Canadian commuter university. Study results indicated that, among other variables, parent/child relationships in the form of parental support were critical to persistence.

Akin to Wintre and Bowers's (2007) favorable findings, Simmons (2008), in interviews with 17 seniors at Brown University, noted that students perceived parents as playing a critical role as guides in the decision-making process and as sources of general support. Further, though the sample was mostly comprised of White students, Simmons noted that students hailing from minority or foreign cultures perceived their "parents most helpful in maintaining their connection with home" (p. 37). In similar explorations of family support, Rayle and Chung (2007), examined the relationship between family/friend support, academic stress, and mattering for 533 first-year college students and found that students who felt supported by family and school friends experienced less academic stress and/or felt more important to the college/to school friends. Interestingly, Rayle and Chung discovered that support from college friends, not family, was a

significant predictor of students' sense of mattering to the institution. Also reporting on the salient role of friends versus family, Friedlander, Reid, Shupak, and Cribbie, (2007) found that increased support from friends, rather than family, had a more significant role in improved college adjustment for the 115 freshmen in their study. While 90.0% of the students in the sample contacted their parents weekly, Friedlander et al. hypothesized that the residence hall experiences of those living on campus favored the support of those more proximal—i.e., friends. This research suggests that living arrangements figure directly into the nature, selection, and power of certain relationships.

*First-generation college student interaction with parents and family support.*

Earlier in this study, the role of parental involvement, in tandem with cultural capital, during first-generation students' pre-college years was discussed. The findings, overall, noted that family was seen as an important source of motivation and personal support but that parents could offer little to students in terms of tactical college knowledge (e.g., Acker-Ball, 2007; Cabrera & La Nasa, 2001; Cabrera & Padilla, 2004). However, the purpose of this section, while related, is to explore the texture of first-generation college students' interactions and engagement with parents/family *during* the college-going years as well as students' perception of family support.

As aforementioned, the transition into the college environment for first-generation students can be challenging and painful as they straddle the cultures of home and campus life (Davis, 2010). Given the likelihood of attending community college, commuting to campus, and having home-life responsibilities (Asrat, 2007; Choy, 2001; Saenz et al., 2007; Walpole, 2003), the suggested probability of first-generation students engaging frequently with home-based family and friends via personal contact or other forms of

communication is high. One study explored the implications of such contact. Votruba, (2007), while studying influences on college adjustment, found a significant main effect for leaving campus frequently to visit family/friends (i.e., daily/weekly versus monthly) on college adjustment. Yet, interestingly, students' college generational status was not significant. Votruba's findings are compelling in that they suggest that all students, regardless of "generation," can experience difficulties with college adjustment as a result of leaving campus frequently to visit home-based family and friends. Interestingly, this study, focused mostly on White students, surfaces questions of whether results, given Rendón et al.'s (2000) discussion on dual socialization and converging worlds for students of color, would be different with a more racially/ethnically diverse sample.

This concept of converging worlds did emerge in Maramba's (2008) study of 82 Filipina-American college students' (46 of whom were first-generation) experiences of family support during the college-going process. Maramba reported that, while all of the women in the study cited parents as their primary influence to attend college, not all of the parent-daughter relationships during college were good. Specifically, Maramba shared that the women found relationships with parents to be stressful given the tug-of-war between family and school obligations. Further, the respondents noted that parents' unfamiliarity with the college environment prompted parents to misunderstand the rigor of college work and/or to underestimate the value of extra-curricular involvement. This theme of "unfamiliarity" also emerged in Bradbury and Mather's (2009) research. In their qualitative study of the integration of nine first-year, first-generation Appalachian students into the college environment, Bradbury and Mather noted that family was a double-edged sword. While family support was vital for students' morale, the lack of

parental college knowledge forced students to negotiate the new terrain, particularly with regard to faculty expectations, quite alone.

Akin to the themes uncovered by Bradbury and Mather (2009), Bryan and Simmons (2009), in their qualitative study of 10, first-generation Appalachian college students, noted that, despite family college knowledge, the presence of parental support and encouragement was central to the student experience. While family members could be of little help during the college experience, their role as motivators was critical. Reporting a related outcome, Acker-Ball (2007), in her qualitative study of nine first-generation college students, found that older, college-going siblings who served as role models and motivators, were essential to first-generation students' decision to remain enrolled. The findings shared by Bradbury and Mather, Bryan and Simmons, and Acker-Ball suggest that parents are an important source of inspiration for first-generation college students but that support during the college-going years may be limited given parents' access to information about college culture. Yet, the discussion regarding first-generation college students' interaction with parents also implies that, while tactical help may be wanting, communication and contact may be frequent, desired, and may play a substantial role as these students negotiate their home and college worlds.

**Intra/extra-institutional involvements.** In the following section, student employment and students' living arrangements will be explored as intra/extra-institutional involvements given their potential for on- *or* off-campus "placement" in the consideration of the "concentric" (Reason, 2009) fashion in which student environments can and should be considered.



**Employment.** In a 1995 research study, Kuh (1995) assessed that literature focused on the relationship between student employment and college outcomes was inconclusive; over a decade later, Moore and Rago (2009) asserted the same point. Studies exploring the value of work have shown that employment can both detract from and enhance the college experience (Moore and Rago). In *What Matters in College?*, Astin (1993) found that, while modest on-campus employment contributed positively to student outcomes, employment off-campus could be detrimental to college involvement. Similarly, Furr and Elling (2000), in their study of over 400 undergraduate students, discovered that students working more than 30 hours per week off-campus were less involved with campus activities than peers working fewer or no hours.

Yet, Lundberg (2004), using a national sample of 3,774 students responding to the CSEQ, found that, while students who worked 20 or more hours off-campus reported less faculty contact, they did not suffer differences in learning when compared to peers. Bradley (2006), in researching the influences of campus employment, also found no differences. In fact, in his more modest study of 246 full-time undergraduates, Bradley reported that GPAs were similar for students who worked more than 20 hours per week and those who did not work. Yet, results for a similar study of GPA conducted by Moore and Rago (2009) were mixed. Via analysis of over 200,000 student responses to the NSSE, the authors found that GPAs did not suffer from greater hours worked *on*-campus but that students who worked 10 or fewer hours *off*-campus had higher grades. Further, students working more than 31 hours off-campus perceived the campus environment as unsupportive. Interestingly, Moore and Rago reported that Hispanic and Black students were more likely to work off-campus and to work more than White students.

*First-generation college students and employment.* Though not synonymous terms, “first-generation” and “low-income” do often go hand in hand given the amount of overlap between the two student populations (Gupton, Castelo-Rodriguez, Martinez, & Quintanar, 2009). As such, it comes as no surprise that first-generation college students are usually more than gainfully employed. In a recent study, Martinez et al. (2009) followed over 3,000 students for four years at a single institution in an effort to understand attrition risk factors. In studying the 921 first-generation students in the sample, the researchers found that first-generation college students were not only more likely to work during college, but they were also more likely to maintain full time jobs.

While Martinez et al.’s study was based on a sample of students that was more than 90.0% White and for which parental education was dichotomized, the findings are consistent with those of larger studies. For example, Engle and Tinto (2008), while examining a range of NCES data from NPSAS, B&B, and BPS collections, discovered that low income, first-generation students were likely to work more than 20 hours per week. This finding was supported by Saenz et al. (2007), who, using multi-institution CIRP data, reported that, in 2005, more first-generation students than non-firsts worked 20 or more hours per week in their final year of high school (22.2% versus 15.0%). Additionally, more than half of these first-generation students expected to get a job to pay for college. In a much smaller study, Asrat (2007) validated Saenz et al.’s findings by reporting that, of the 211 first-generation NSSE responses analyzed, 50.0% of the students reported they were working. Asrat’s study, coupled with the work of Engle and Tinto, Saenz et al., and others, suggests that employment is central to the first-generation profile and may play a role in how they think about other involvements.

***Residence.*** Rethlake (2007), in his study of over 61,000 college students using NCES's NPSAS:00 data, found that living off-campus was negatively associated with persistence. Reporting related findings, Somers et al., (2004), in their study of 24,262 students at four-year institutions, found that students who lived on campus were more likely to persist. Somers et al.'s discovery affirmed the earlier work of Astin (1993), who, via his CIRP-based study of over 20,000 undergraduates, found that living in a campus residence hall aided retention. In addition to the benefits to retention, research suggests that on-campus living may also contribute to better academic performance. In their study of the relationship between "academic performance" (i.e., GPA) and living on campus for 363 Indiana University Purdue University Indianapolis sophomore students, de Araujo and Murray (2010) found that on-campus living significantly increased GPA. The findings that emerged from Rethlake, Somers et al., and de Araujo and Murray's research on students' place of residence are echoed by Terenzini et al. (1996a) who, in their meta-assessment of out-of-class experiences that contributed to positive cognitive outcomes, pointed to student's place of residence as a powerful force.

***First-generation college students and residence.*** As noted earlier in this chapter, Choy (2001), in her NCES-sponsored study, reported that 53.0% of 1995-1996 beginning postsecondary first-generation students enrolled at two-year institutions instead of the typically residential four-year colleges and universities. The suggested implication is that first-generation students may be more likely to commute than live in the residence halls. In support of this point, Asrat (2007), in her modestly-sized study of 211 first-generation students enrolled at a HBCU, uncovered that 66.0% of the students in her sample were commuters. Further, Saenz et al. (2007), in their CIRP-based study of students at four-

year public and private institutions, found that first-generation students were less likely to live on campus than non-first-generation peers. Additionally, Koch (2008), in a smaller qualitative study exploring the second year departure rationale for six first-generation students, found that five of the six students lived off-campus with parents or siblings.

Interestingly, the scholarship documenting the likelihood of first-generation college students' off-campus living is plentiful, yet, literature exploring residence hall living and its contribution to outcomes for these students is quite scarce. In one CSEQ-supported study examining this topic, Pike and Kuh (2005) compared the intellectual development and engagement of 439 first-generation students to similar outcomes for 688 non-first-peers and found that first-generation students were less engaged due, in part, to living arrangements while attending college. In fact, the researchers found that, for students in general, "living on campus had the greatest total effect (i.e., the combination of direct and indirect effects) on learning outcomes of any student characteristic" (Pike & Kuh, p. 289). Pike and Kuh attributed the power of campus living to Newcomb's (1962) propinquity principle, which surmised that the proximity to college life, such as that provided by the residence halls, inspired engagement.

In alignment with Pike and Kuh's (2005) findings regarding the value of campus living, Inkelas, Daver, Vogt, and Leonard (2007) provided a more specific understanding of the benefits of residence halls via their exploration of the role of Living-Learning Programs (LLPs) in facilitating 1,335 first-generation college students' perceived social and academic transitions to college. Inkelas et al. found that first-generation students participating in LLPs reported more successful transitions than first-generation peers living in traditional residence halls. These findings, drawn from the 2004 administration

of the NSLLP, suggested that LLP facilitated involvements, such as faculty interactions and supportive residence hall climates, were associated with smoother academic and social transitions. Inkelas et al.'s work may imply that, given the potential need for additional transition support, some first-generation college students might not only benefit from general on-campus living, but also from on-campus living tied to intentional programming with the goal of involving students.

**Summary: Intra- and extra-institutional environments and involvement.** In the previous pages, general involvement literature as well as potential first-generation student engagements on- and off-campus were explored in an effort to understand students' experiences relative to the outcomes of interest. This exploration summarized a number of compelling findings but also revealed substantial gaps in the literature with regard to the examination of intra- and extra-institutional environments and involvements for first-generation students. With these limitations in mind, and in keeping with this study's conceptual framework, the following section will explore undergraduate persistence and graduate educational aspirations in an effort to develop a more holistic understanding of the first-generation experience and its relationship to outcomes.

### **Student Outcomes: Undergraduate Persistence and Graduate Educational Aspirations**

The goals of this study were to explore the student characteristics and college/non-college environmental elements potentially associated with two critical outcomes for first-generation college students: undergraduate persistence (i.e., attainment) and graduate degree aspirations. Following, literature addressing both of these outcomes will be explored. First, persistence scholarship will be discussed in the

context of the theoretical developments and common themes. Following, the persistence models providing context for this study will be address, and, finally, persistence literature highlighting first-generation college students will be explored. The aspirations discussion will begin with a broad examination of aspirations literature, to include graduate aspirations, and will conclude with a discussion of first-generation college students' aspirations for advanced study.

### **Undergraduate persistence.**

*Theoretical evolution and common themes of persistence.* While not a substantial topic of research and study in the U.S. until the 1970s, student retention and persistence issues eased into higher education's consciousness in the 1930s as the value of a college degree paired with concerns about student departure emerged (Berger & Lyon, 2005). In its earliest iterations, the study of persistence was linked to academic failure, but the understanding of student departure began to change when scholars such as Spady (1971) asserted the value of the interplay between student characteristics and institutional environments in departure decisions (Berger & Lyon; Tinto, 2006). Spady proposed that a student made the "decision to leave a particular social system as the result of a complex social process that includes family and previous educational background, academic potential, normative congruence, friendship support, intellectual development, grade performance, social integration, satisfaction, and institutional commitment" (p. 38). Decades later, while the persistence literature base has blossomed to include economic, organizational, psychological, and sociological models for understanding and deciphering the "ill-structured problem" of student departure (Braxton & Hirschy, 2005), persistence themes have remained fairly consistent.

Bean (2005), in his attempt to foster a broader appreciation for the complexity of persistence, posited nine such themes, noting that student intentions, attitudes about institutional fit, attitudes about institutional loyalty, academics (including faculty interactions), social factors (e.g., belonging), bureaucratic factors, external factors (e.g., work and family), student background, and finances played a role in persistence. Similarly, Noel (1985) cited a robust list of “themes of attrition” jeopardizing student success such as academic boredom or uncertainty, transition and adjustment difficulties, limited or unrealistic expectations of college, incompatibility, and irrelevancy. Using Noel’s writing as a foundation, Pappas and Loring (1985) identified five variables most related to participation and persistence: a) communication, b) sociological variables such as gender, income, race, and occupation, c) psychological variables such as academic aptitude, d) program and classroom variables such as curriculum irrelevancy and faculty behavior, and e) situational factors such as transportation and home life.

While there is considerable overlap between the themes noted by Bean (2005), Noel (1985), and Pappas and Loring (1985), this overlap reinforces the salient aspects of persistence from the earliest theoretical offerings made by Spady (1971) to the more recent codification of college impact conceptualized by Astin (1993) via his I-E-O model. This overlap further suggests a robust and pragmatic blueprint for the manner in which persistence models can be adapted to understand the key contributors to student persistence from a holistic perspective. Two such persistence models—Tinto’s (1987, 1993) interactionalist Student Integration Model and Bean and Metzner’s (1985) Non-Traditional Undergraduate Student Attrition Model—offer tangible examples of how the persistence themes noted above can be adapted and actioned.

Given these models' influence, in the following section, Tinto's (1987, 1993) and Bean and Metzner's (1985) models will be discussed and appropriate critiques will be addressed. While a review of these models will not exhaust the theoretical offerings on persistence, these two models were selected for discussion given their saliency to the larger literature base and/or saliency to this study. Tinto's near "paradigmatic stature" (Braxton & Hirschy, 2005, p. 68) in higher education persistence research begs a deeper discussion of the model's contributions and challenges, particularly with respect to non-traditional student populations (e.g., first-generation students). Bean and Metzner's model constituted a pillar of this study's theoretical framework given its ability to address environmental elements critical to persistence left unengaged by Tinto's popular model, and, as such, warrants special attention.

***Models of persistence, applications, and critiques.***

*Student Integration Model.* Tinto's (1975, 1987, 1993) sociologically-focused Student Integration Model advanced the notion that student departure from college reflected "the character of the individual's social and intellectual experiences within the institution" (1993, p. 50) and the extent to which those experiences integrated the student into institutional life. Tinto noted that lack of congruency (i.e., fit) between students and the institution as well isolation (i.e., lack of academic and social integration with peers and faculty) resulted in the departure decision. Reflecting on the work of anthropologist Arnold Van Gennep, Tinto's model focused on the "rites of passage" that characterized student departure as an inability to integrate fully into the membership of the institution while leaving the "home" memberships behind.



Tinto's (1975, 1987, 1993) phases of passage included separation, transition, and incorporation, with each stage including an adjustment in interactions between the individual and society. In Tinto's model, the separation phase involved leaving past associations while the transition stage involved developing ways of relating to the new group. The final incorporation stage involved students establishing new patterns of membership in the new group and forming commitment. Tinto focused on a student's loyalty or commitment to the institution and noted that "within institution" occurrences and involvements were more critical to promoting persistence than external ones. While Tinto's 1993 revision of his model offered a more favorable rendering of external commitments, as illustrated in his admission of the potential existence of a "supportive subculture in the student's home community" (p. 63), Tinto still argued that external obligations "'pull' one away from participation in the local communities of the college" (p. 64) and, potentially, hinder persistence.

The value that Tinto (1975, 1987, 1993) placed on the institutional environment has earned him a number of critiques, particularly with regard to underserved student populations and students for whom external factors (e.g., family) are of high importance to undergraduate pursuits. In his critique of Tinto's Student Integration Model, Guiffrida (2006) observed that

While Tinto's theory recognizes the impact of family on pre-college commitment, to truly be descriptive of students who espouse collectivist cultural orientations, the theory must also recognize the potential of families and friends from home... to support students once they arrive at college. (p. 457)

Rendón, Jalomo, and Nora (2000) shared a similar sentiment and voiced unease with Tinto's presumption of a "dominant" culture into which students must integrate—i.e., the institutional culture. Additionally, Rendón et al. numbered a variety of concerns with Tinto's model to include the model's tendency to put the involvement responsibility solely on the student (rather than with student *and* institution), its bent on painting external environments as a liability, and its diminishment of the systematic barriers (e.g., cultural capital) potentially playing a role in the persistence of underserved populations. Recently, however, Tinto (2006) offered a reframed perspective countering some of these critiques. He acknowledged the systemic impact of economic stratification, and, with regard to external contexts, noted that where, at one point "retention required students to break away from past communities, we now know that for some if not many students the ability to remain connected to their past communities, family, church, or tribe is essential to their persistence" (Tinto, 2006, p. 4).

Despite the critiques made of Tinto's (1975, 1987, 1993) model, a number of researchers have validated portions of his interactionalist theory. Specifically, Mutter (1992), guided by the Student Integration Model in a study of 766 community college students, found that students who experienced more academic integration, goal and institutional commitment, and, interestingly, external encouragement from others were more likely to persist. Also with a focus on community colleges, Karp, Hughes, and O'Gara (2010), explored the use of Tinto's model with a qualitative study of 44 first-time two-year students and found that, while engaging with the institution might be more challenging for these students given issues such as time, off-campus residence, etc., both social and academic integration occurred and contributed to their second-year

persistence. Exploring the balance between social and academic integration from a different perspective, Mannan (2007), with a study of 2,400 full-time undergraduate students at a four-year institution, tested the compensatory relationship between academic and social integration. The researcher found a strong, inverse relationship between academic and social integration: Students who integrated less so in the social aspects of the institution integrated more deeply into the academic realm and, thus, persisted. This discovery affirms Tinto's notion that, while both social and academic integration are necessary for student persistence, the extent of the integration can be different.

*Non-Traditional Undergraduate Student Attrition Model.* While the acknowledgement of external factors in the persistence equation is apparent in Tinto's (1993) more recent work, the understanding that factors *external* to the institution (as well as *internal*) could play a role in student persistence has been critical to Bean and Metzner's (1985) model since its inception. Reminiscent of Bean's (1985) earlier work on student dropout syndrome, the Non-Traditional Undergraduate Student Attrition Model focused on the experiences of "non-traditional" learners given these students' growing enrollment numbers and differing circumstances as compared to full-time, residential, parent-supported undergraduates. Bean and Metzner wrote that "traditional and nontraditional students cannot be easily classified into simple dichotomous categories" (p. 488). Yet, "These two groups of students can be differentiated on the basis of age, residence, and full- or part-time attendance, not to mention ethnicity, gender, or socioeconomic status" (Bean & Metzner, p. 488). Bean and Metzner noted that background and defining variables (e.g., age, high school performance, ethnicity, gender), academic variables (e.g., study habits, absenteeism, academic advising),

environmental variables (e.g., finances, family responsibilities), and, peripherally, social integration variables, through direct and indirect means, influenced psychosocial outcomes (e.g., satisfaction, stress), intent to leave, and persistence.

While the other-than-author translations to practical use for Bean and Metzner's (1985) model are limited in the literature, one study by Stahl and Pavel (1992) did attempt to validate the model in the exploration of community college student persistence. However, in their study of 597 students at an urban community college, Stahl and Pavel found that Bean and Metzner's model had weak explanatory power for their population. The researchers were able, though, to adopt pieces of the model in the creation of the Community College Retention Model. Specifically, they removed a number of background variables from the new model to include age, ethnicity, and gender. In a more recent study grounded in Bean and Metzner's theoretical framework, Olson (2009) analyzed NCES data to compare non-traditional student retention at community colleges with student retention at for-profit institutions. With an initial sample of nearly 1,000 students, Olson found that model variables such as credit hours and age were viable potential contributors to student completion. While Olson's analysis did not include all elements of the Non-Traditional Undergraduate Student Attrition Model, he surmised the model to be of use in the study of non-traditional students.

Akin to Olson (2009), Rowan-Kenyon, Swan, Deutsch, and Gansneder (2010) also found portions of Bean and Metzner's conceptualizations to be of value. Using Bean and Metzner's work as the theoretical basis, the researchers conducted a mixed-methods study aimed at understanding the academic experiences and achievements of working adult students. Via quantitative analysis of 1,179 student responses to the 2007 National

Study on Non-Traditional Students Survey and qualitative analysis of focus group transcripts, Rowan-Kenyon et al. discovered that elements of the Bean and Metzner model such as age, gender, and income, as well as external support from employers, factored into student outcomes. The research by Rowan-Kenyon and other scholars discussed above affirms that, while not all elements of Bean and Metzner's model have been explored uniformly, the model has proven helpful in providing some understanding about the college experiences of non-traditional students whose lives go beyond campus gates. Thus, Bean and Metzner have supplemented the external considerations that Tinto's (1975, 1987, 1993) interactionalist model minimized.

Interestingly, Cabrera et al. (1993) recognized that, despite the differences between Tinto's (1975, 1987, 1993) model and the earlier iterations of the Bean and Metzner (1985) model conceptualized by Bean (1985), both models regarded persistence as a set of complex interactions connected to "fit" between institution and student. Given this common thread, Cabrera et al., conducted a longitudinal study with a traditional freshman class of 466 students. The researchers used elements of both models, particularly the factor of institutional commitment, and found that external factors were critical in the student transition. Cabrera et al. reported the impact of encouragement from family and friends on commitment, the importance of the intent to persist, and the saliency of GPA and goal commitment on persistence. The researchers confirmed that merging Tinto's and Bean's work allowed for the inclusion of external *and* internal factors which, together, best explained persistence behavior and intent to persist. This synthesis is particularly important in the conceptualization of persistence for students, such as first-generation students, where a holistic view of the individual is essential.

*First-generation college students and persistence.* While research exploring the persistence of first-generation students has been included throughout this literature review when relevant to the discussions of the first-generation student profile or intra- and extra-institutional involvements, the following pages document studies where persistence was an explicit outcome of interest. Studies reporting the general state of first-generation student persistence will be addressed as well individual studies examining the “why” of first-generation persistence.

In exploring the general state of first-generation persistence, Choy (2001), using nationally-representative NCES data, reported that first-generation students were more than twice as likely as non-first-generation students to leave four-year institutions before the second year. In a more recent study, Bradburn (2002), analyzing BPS:96/98 data, found that, for 1995–96 beginning postsecondary students, first-generation students were more likely than non-firsts to leave public four-year, private four-year, and public two-year institutions without a credential. Validating both Choy and Bradburn’s findings, Astin and Oseguera (2005) analyzed CIRP degree attainment data collected in fall 1994 for 56,818 students at 262 institutions and reported that higher levels of parental education did indeed facilitate degree completion in four or six years. These findings suggest that students whose parents did not attend or complete college were at a disadvantage. Clearly, first-generation students are vulnerable to early departure from college, but the question of “why” students stay or leave is one that a number of researchers have attempted to answer.

In an attempt to understand the “why,” Koch (2008) explored the academic and non-academic experiences of six first-generation students who left their university before

the second year and found that departure was attributed to the need to enroll in a college closer to home, academic boredom, financial problems, uncertainty about educational or occupational goals, lack of social contact with other members of the college community, bureaucratic issues (e.g., registration policies), and academic unpreparedness. Duggan (2001), examining nationally representative NCES data, also explored this issue of academic preparation and found that first-year, first-generation persistence was related to the rigor of high school curriculum, where students with slightly/less rigorous courses had an 83.0-88.0% persistence rate and students with moderately rigorous/rigorous had a 92.0-97.0% persistence rate. Cushman (2007), in interviews with 16 first-generation college students and alumni, also examined academic preparation. While she found that first-generation students arrived on campus with less academic preparation, confidence, and money than their non-first peers, she also discovered that strong social and academic networks aided persistence. Further, co-curricular activities and faculty guidance mattered to persistence. As aforementioned in this study, the value of peer and faculty relationships in the college persistence process can be quite potent. Pursuing this line of thought, Settle (2005), using the BPS:96/98 data set to explore first-generation student year-to-year persistence, reported that students who persisted at either two- and four-year institutions had campus friendships and extra-classroom contact with faculty.

Rethlake (2007), examining the first-to-second year persistence of over 61,000 students using NCES's NPSAS:00 data, analyzed persistence measures for nearly 10,000 first-generation students and found that race, academic preparation, income, and aspirations all played a role in the persistence of first-generation students. Specifically, Rethlake reported that first-generation students who had earned a high school diploma

(rather than a GED), who aspired to a bachelor's degree (rather than "some" college), who reported high income, and who identified as "other than African American" were more likely to persist. Rethlake's study highlighted a particularly salient issue for first-generation college students: the link between race, income, and persistence. As noted in chapter one of this study and earlier in chapter two, first-generation students are more likely to be students of color and to report lower family incomes—both of these factors play into the larger persistence picture. In fact, Lohfink and Paulsen (2005) commented on the multiple oppressions of first-generation students given the intersection of identities (e.g., race, SES-level) that makes them vulnerable to attrition. Specifically, these two researchers, in their study of over 1,000 first-generation and nearly 3,000 continuing-generation students, found that, while first-generation status was negatively related to persistence, being a first-generation student *and* a student of color (i.e., Latino/a) only further jeopardized persistence. In alignment with Lohfink and Paulsen, Somers et al. (2004), in their study of key persistence variables for first-generation students, reported that first-generation students of color were much less likely to persist.

Interestingly, the intersection of vulnerabilities is further underscored with regard to income. Lohfink and Paulsen (2005) found that first-generation college students with higher incomes were more likely to persist than those with lower incomes, suggesting that income plays a significant role above and beyond parental education. Walpole (2003), while comparing a total of 5,000 low-SES and high-SES students (defined via parental income, education, and occupation), found that students with lower SES levels (and, thus, parents with less education) had lower levels of educational attainment than their higher-SES peers. This point was reinforced by Sherlin's (2002) study of nearly



1,000 first-generation students via which he found that higher income had both direct and indirect effects on persistence to include the facilitation of more college involvement leading to attainment. The research done by Lohfink and Paulsen, Walpole, and Sherlin underscores the important point that first-generation student persistence cannot be understood in a vacuum; multiple factors are at play in their attainment journeys.

### **Graduate educational aspirations.**

*The educational aspirations landscape.* Educational aspirations, or goals, have been identified as a noteworthy predictor of actual educational attainment (Bradburn, 2002; Qian & Blair, 1999; Sewell & Hauser, 1980), and, as noted in the earlier discussion of the first-generation student profile, can be shaped by a myriad student characteristics including cultural capital and habitus. MacLeod (1987, 2008), in his ethnographic study of the academic and social struggles of two peer groups in the Clarendon Heights housing projects, emphasized this point. In assessing the educational and occupational aspirations of the low-income youths in his study, he confirmed that upward mobility involved more than an achievement orientation; class conditions and habitus were pivotal.

MacLeod's observations reinforced findings that emerged in a study completed decades earlier by Sewell and Shah (1968) in which they analyzed data from a cohort of nearly 10,000 Wisconsin high school seniors. The researchers found that, in addition to intelligence and parental involvement, SES was well-associated with students' college aspirations. These findings do much to affirm Astin's (1970) and Weidman's (1989) perspective that aspirations, much like persistence and the vast number of other endogenous variables noted in college impact models, are a legitimate college outcome. Yet, while secondary students' college aspirations have been studied robustly (Ellwood &

Kane, 2000; Horn & Nuñez, 2000; McCarron & Inkelas, 2006; Rowan-Kenyon et al.; 2008; Walpole, 2003), little research, as confirmed (and foretold) by Pascarella (1984), has examined how/if student input characteristics and postsecondary experiences contribute to aspirations for post-baccalaureate credentials.

In one of those rare studies, Pascarella (1984), in a path analysis study of nearly 5,000 undergraduate students who completed the 1975 CIRP student survey, found that, while pre-college student demographics were the best predictors of students' aspirations at the end of college, environmental factors such as academic/intellectual competition, accessibility of faculty, and social climate also had a modest influence on aspirations for advanced education. In alignment with Pascarella, Hearn (1987), via his CSEQ-based longitudinal study of the influences on plans for graduate training for 418 undergraduates, discovered that environmental factors such as parental supportiveness and student-faculty interaction played a role in graduate aspirations. The role of faculty also emerged as significant for Sax et al. (2005), who in a study of the contribution of college-based interactions to a number of outcomes, used CIRP survey data collected between 1994 and 1998 for nearly 17,000 undergraduate students and discovered that faculty support contributed to aspirations for higher-level degree attainment.

Extending this exploration of faculty support and interaction, Strayhorn (2010) analyzed survey responses from undergraduate students who participated in a Ronald E. McNair Scholars Program summer research experience. Through analysis of responses from students in this special college access program, Strayhorn discovered that engagement with undergraduate research positively influenced aspirations for graduate study. The researcher found that over 70.0% of the students (sample size undisclosed)

surveyed noted that their considerations of graduate school were “sustained or increased” because of their participation in research activities. Heath (1992), examining the graduate school aspirations of a CIRP-based sample of nearly 16,000 students, found that, for all students, college involvement with research was related to graduate school aspirations. The researcher also noted that students’ high school achievement was associated with aspirations. In an effort to explore racial differences, Heath compared the graduate school aspirations of African American and White students and found that, while African American students aspired to higher degrees (e.g., doctorates) than White students, White students were more likely to have plans to attend graduate school. This finding might speak to the intersectionality of race and SES, as proposed by scholars such as Lohfink and Paulsen (2005), in the realization of educational goals.

Given the saliency of SES and race in the higher education process, Walpole (2008) utilized CIRP data from the 1985 Freshman Survey to explore the differences in undergraduate and graduate educational aspirations for a sample of 365 African American students. Walpole found that students from low-SES households reported higher aspirations for bachelor’s and master’s degrees than their more affluent peers but lower aspirations for more high-status credentials such as doctorates or medical and law degrees. Interestingly, though, over the course of Walpole’s study (i.e., 1985-1994), aspirations for low-SES students did not rise above those of their high-SES peers. This study’s findings are compelling given Pascarella et al.’s (2004) observation that “the college experience itself provides a vehicle for acquiring additional cultural/social capital” (p. 252). If the college experience can enrich students’ cultural toolkits, one would assume more equity in graduate degree aspirations. Given the aforementioned

modesties in first-generation college students' levels of cultural capital, the exploration of aspirations for post-baccalaureate degrees should be particularly salient.

*First-generation college students and graduate educational aspirations.* A recent report summarizing findings from the deployment of the 2009 NSSE (NSSE, 2009) to 640 institutions detailed disheartening news: First-generation seniors were less likely to pursue graduate education. Sharing similar results, a NCES-sponsored, B&B:93/03 and NPSAS:93-based study authored by Nevill, Chen, and Carroll (2007) noted that the likelihood of completing a graduate degree was associated with parents' highest education level "with the rate increasing from 53 percent among those whose parents had less than a high school education to 67 percent among those whose parents had a graduate degree" (Nevill et al., p. ix). Andres et al. (2007) echoed Nevill et al.'s findings in their longitudinal study of nearly 1,000 British Columbia high school graduates; the authors found that students with more highly education parents were more likely to complete bachelor's, master's, and doctorate or professional degrees.

The studies cited thus far underscore the link between parental education and students' likelihood of pursuing/completing graduate study; the parallels to undergraduate degree persistence are striking. Yet, the parallels continue. While literature exploring first-generation college students' graduate educational aspirations is in short supply, particularly with respect to aspirations gauged *during* postsecondary schooling, a few studies have touched on the subject in one context or another. These studies further highlight the parallels between the importance of student background and experienced environments to graduate aspirations. In one such study, Saenz et al. (2007) examined the 35-year trends in graduate aspirations of students entering four-year

institutions and found that, while the aspirations of both first-generation and non-first-generation students had increased from 1971 to 2005, first-generation students still had lower aspirations. The researchers hypothesized that lower degree aspirations were linked to financial realities and general lack of information about college.

Examining the issues of finances and information through the lens of parental capital, Hayden (2008), explored the relationship between parental capital (i.e., human, social, and cultural) and graduate aspirations for 267 first-generation college students. Hayden, using data from the National Longitudinal Survey of Freshmen (NLSF), found that parental capital was slightly related to aspirations but that degree of aspirations did not differ between the “firsts” and “non-firsts.” The researcher hypothesized that the high selectivity of the NLSF institutions were a mediating factor in aspirations, thus, producing little difference. Interestingly, however, in parsing aspirations by student demographics, Hayden did find that female students, both first- and non-first generation, had higher graduate school aspirations than their male counterparts and that Asian students had the highest aspirations followed by Black, Hispanic, and White students.

Hayden’s (2008) findings with regard to gender and race are consistent with those of McCarron and Inkelas (2006) who, utilizing NCES’s NELS:88-00 data to examine the educational aspirations of 1,692 first-generation secondary students, also discovered that Asian/Pacific Islander students were more likely to aspire to master’s and doctorates than first-generation students of any other racial/ethnic identity. With regard to levels of aspirations, McCarron and Inkelas found that nearly 25.0% of the first-generation students surveyed aspired to graduate degrees and that parental involvement was a viable, but marginal, contributor to aspirations. Interestingly, this potency of parents/family was

also salient in Payne's (2006) study of the barriers and motivations associated with planning for/attending graduate school for 124 first-generation college students. Payne found that, while finances were a barrier, parental/familial encouragement were critical to students' dispositions toward graduate school.

The issue of finances as an impediment toward higher educational aspirations, as underscored by Payne (2006), also surfaced in Engle and Tinto (2008)'s examination of low-income, first-generation students' aspirations for advanced degrees. The researchers used nationally-representative, NCES B&B data and discovered that low income, first-generation students were as likely to aspire to advanced degrees as their more affluent peers but, consistent with the aforementioned attainment rates, were less likely to complete. The authors suggested that first-generation students' aspirations and persistence at the graduate level were susceptible to the same detractors as aspirations and persistence at the undergraduate level (e.g., dearth of information, finances, support). This observation complements Payne's sentiment that in order to get "to" graduate school, first-generation students first need to get "through" college, and, thus, serves as a sound reminder that student background variables as well as engagements in intra- and extra-institutional environments matter far beyond the college diploma.

**Summary: Persistence and graduate educational aspirations.** In the section above, the college outcomes of undergraduate persistence and graduate educational aspirations were discussed and appropriate literature citing the intersections with first-generation student status was embedded. However, while the persistence literature acknowledged both individual and environmental factors at play in students' decisions to remain in higher education, research linking these elements to the development of

aspirations, particularly aspirations for advanced study, was modest. Additionally, across most areas of scholarship for both persistence and aspirations, literature focusing on first-generation students is scarce. This study hoped to remedy, in part, this literature gap via contribution of new knowledge through the subsequent analyses.

## **Chapter Two Summary**

Based on the literature presented, first-generation students represent a diverse population that brings a variety of life experiences to the college campus. This review of the scholarship has attempted to highlight the major studies that explore this experience both in terms of personal characteristics and the higher education environment. While studies summarizing the pre-college circumstances of first-generation students as well as their individual background characteristics (e.g., race, SES, cultural capital) are in abundance, little research expounds on the collegiate experiences of these students. Specifically, studies that address the intra- and extra-institutional involvements of these students in relation to undergraduate persistence and aspirations for graduate education are limited or non-existent. Thus, this study sought to fill a gap in what is known about this important population of students by examining their college lifecycle and doing so with a specific eye toward students at elite institutions.

The main objective for this study was to provide a holistic understanding of the individual and environmental factors that contributed to undergraduate persistence and to educational aspirations beyond the bachelor's degree. The following methodology chapter will outline this study's approach to these important issues via discussion of sampling, instrumentation, data collection procedures, and data analysis techniques.

## **Chapter Three: Methodology**

The review of the literature has shown that first-generation college students, while sharing common elements as a population, are unique individuals and necessitate a deeper understanding if educators and vested others hope to develop successful interventions. As such, the purpose of this study was to examine one component of the first-generation experience: the factors that contribute to the undergraduate persistence and graduate educational aspirations of first-generation college students attending elite institutions. The following chapter will outline the methodology for collecting and analyzing the data critical to clarifying some of these factors. As originally posed in chapter one, the primary research question and multiple sub-questions will be reviewed and the corresponding hypotheses will be articulated. This chapter will also detail the specific statistical methods planned for data analysis.

### **Research Questions and Hypotheses**

Given this investigation's purpose and terminological parameters, the study was initially guided by the following research questions:

1. What are the factors that contribute to the undergraduate persistence and graduate educational aspirations of first-generation college students attending elite institutions?
  - a. Do student background characteristics (i.e., race, gender, generational status in the U.S., pre-college annual household income, pre-college academic aptitude, pre-college educational aspirations, sibling post-secondary attainment, and frequency of pre-college engagement in



cultural capital activities) contribute to undergraduate persistence and graduate educational aspirations?

- b. Do intra-institutional involvements (i.e., frequency of student-student interaction, frequency of co-curricular involvement, frequency of student-faculty interaction, and students' perceptions of the importance of faculty mentoring) contribute to undergraduate persistence and graduate educational aspirations?
  - i. Is there a difference in intra-institutional involvements by students' race, gender, generational status in the U.S., pre-college annual household income, pre-college academic aptitude, pre-college educational aspirations, sibling post-secondary attainment, and frequency of pre-college engagement in cultural capital activities?
- c. Do extra-institutional involvements (i.e., the frequency of student-parent interaction, students' perceptions of the importance of family support in guiding them through their college careers) contribute to undergraduate persistence and graduate educational aspirations?
  - i. Is there a difference in extra-institutional involvements by students' race, gender, generational status in the U.S., pre-college annual household income, pre-college academic aptitude, pre-college educational aspirations, sibling post-secondary attainment, and frequency of pre-college engagement in cultural capital activities?

- d. Do intra/extra-institutional involvements (i.e., weekly hours of employment, living arrangements) contribute to undergraduate persistence and graduate educational aspirations?
  - i. Is there a difference in intra/extra-institutional involvements by students' race, gender, generational status in the U.S., pre-college annual household income, pre-college academic aptitude, pre-college educational aspirations, sibling post-secondary attainment, and frequency of pre-college engagement in cultural capital activities?

The primary research question sought to determine the factors that contributed to the undergraduate persistence and graduate degree aspirations of first-generation college students attending elite institutions. In alignment with the college impact variables suggested by Astin's (1970, 1993) I-E-O framework and the potential measures of persistence noted in Bean and Metzner's (1985) Non-Traditional Undergraduate Student Attrition Model, these factors were parsed into four research sub-questions. These sub-questions explored the contribution of a) student background characteristics (i.e., inputs), and b) environmental aspects such as campus-based (intra-institutional) involvements, off-campus-based (extra-institutional involvements), and intra/extra-institutional involvements relevant both on- and off-campus. A discussion of each research question and the associated hypotheses follows. Hypotheses will vary in their directionality, with some noted as non-directional, given the researcher's understanding of the potential relationships between variables.

**Research sub-question one hypotheses: Student backgrounds.** With regard to student backgrounds or inputs, literature discussed in the previous chapter noted the saliency of first-generation students' pre-college background characteristics in relation to college persistence and the development of educational aspirations. Elements such as first-generation students' income, race, pre-college preparation, and their relationship to cultural capital, could potentially play a role in students' persistence and aspirations for graduate study (e.g., Acker-Ball, 2007; Bui, 2002; Chen, 2005; Choy, 2001; Davis, 2010; Duggan, 2002; Dumais and Ward, 2009; Engle et al., 2006; Hayden, 2008; Hertel, 2002; Horn & Nuñez, 2000; Hossler et al., 1999; McCarron & Inkelas, 2006; McConnell 2000; Saenz et al., 2007; Spera et al., 2009; Terenzini et al., 1996; Warburton et al., 2001).

Thus, the hypotheses developed for research sub-question one follow:

- Hypothesis One: There will be a relationship between students' a) race, b) gender, and c) generational status in the U.S. and the study outcomes of undergraduate persistence and graduate educational aspirations.
- Hypothesis Two: There will be a strong, positive relationship between students' a) pre-college annual household income, b) students' pre-college educational aspirations, c) pre-college academic aptitude, and d) frequency of pre-college engagement in cultural capital activities and the study outcomes of undergraduate persistence and graduate educational aspirations.
- Hypothesis Three: There will be a positive relationship between students' sibling post-secondary attainment and the study outcomes of undergraduate persistence and graduate educational aspirations.

**Research sub-question two hypotheses: Intra-institutional involvements.** The second sub-question sought to examine the contributions of intra-institutional involvements, specifically peer interactions, involvement in co-curricular activities, interactions with faculty, and the perceived importance of faculty support (mentoring) to their college careers, to the undergraduate persistence and graduate educational aspirations of first-generation college students attending elite institutions. The scholarship reviewed in chapter two highlighted the importance of students' interaction with faculty and peers, in general, as contributory to college persistence and other psychosocial and cognitive outcomes (Astin, 1993; Kuh et al., 1991; 2005; Newcomb, 1962; Pascarella & Terenzini, 1991, 2005; Tinto, 1993). Yet, as noted in the literature review, little research has emerged regarding the specific contributions of such interactions to the undergraduate persistence and graduate aspirations of first-generation students. Despite the modest, specific scholarship, the researcher aligned the hypotheses with the optimistic view of peer and faculty interactions on long-term outcomes noted in the general literature. Therefore, the hypotheses for sub-question two follow:

- Hypothesis Four: There will be a strong, positive relationship between students' a) intra-institutional peer interactions, b) intra-institutional co-curricular involvement, c) intra-institutional faculty interactions, and d) perceived importance of faculty mentoring to the study outcomes of undergraduate persistence and graduate educational aspirations.
- Hypothesis Five: There will be differences in students' intra-institutional involvements by students' race, gender, generational status in the U.S., pre-college annual household income, pre-college academic aptitude, pre-college

educational aspirations, sibling post-secondary attainment, and frequency of pre-college engagement in cultural capital activities?

**Research sub-question three hypotheses: Extra-institutional involvements.**

Sub-question three sought to assess the role of extra-institutional involvements through examination of a) student-parent interaction as determined by the frequency of home visits and b) students' perceptions of the importance of family support to their college careers. With regard to first-generation students, the literature discussed in chapter two highlighted students' straddling of home and college life and, thus, suggested that the extent of student-parent interaction could be quite significant as well as challenging and validating (e.g., Asrat, 2007; Choy, 2001; Davis, 2010; Rendón et al., 2000; Walpole, 2003). Yet, while research articulating the influence of type and frequency of student-parent contact is scarce, literature noting the potential benefits of family support to the college persistence of first-generation college students is substantial (e.g., Bradbury & Mather, 2009; Bryan & Simmons, 2009). Given what is known (and unknown) based on the current literature base, the hypotheses for the third sub-question follow:

- Hypothesis Six: There will be a relationship between students' extra-institutional interaction with parents and the study outcomes of undergraduate persistence and graduate educational aspirations.
- Hypothesis Seven: There will be a strong, positive relationship between students' perceptions of family support and the study outcomes of undergraduate persistence and graduate educational aspirations.
- Hypothesis Eight: There will be differences in students' extra-institutional involvements by students' race, gender, generational status in the U.S., pre-

college annual household income, pre-college academic aptitude, pre-college educational aspirations, sibling post-secondary attainment, and frequency of pre-college engagement in cultural capital activities?

**Research sub-question four hypotheses: Intra/extra-institutional**

**involvements.** The fourth and final sub-question sought to examine the contribution of involvements in intra/extra-institutional environments, namely weekly hours of employment and living arrangements, to the undergraduate persistence and graduate educational aspirations of first-generation students attending elite institutions. As noted in chapter two, research findings detailing student employment's influence on college outcomes is mixed. While some scholars pointed to the harms of off-campus employment with respect to academic outcomes (e.g., Astin, 1993), others (e.g., Bradley, 2006; Lundberg, 2004) found no achievement differences between employed and unemployed students. As such, the hypothesis for this employment variable follows:

- Hypothesis Nine: There will be a relationship between students' intra/extra-institutional weekly hours of employment and the study outcomes of undergraduate persistence and graduate educational aspirations.

While the literature on student employment did not coalesce around one major opinion, the scholarship on student residence did. For the most part, living on campus (Pike and Kuh, 2005; Somers et al., 2004) was associated with positive outcomes. Given the literature's bent, the residence hypothesis follows:

- Hypothesis Ten: There will be a strong, positive relationship between students' living arrangements and the study outcomes of undergraduate persistence and graduate educational aspirations.

The final hypothesis for the fourth research sub-question, and for the study in general, was based on the examination of difference. The final hypothesis follows:

- Hypothesis Eleven: There will be differences in students' intra/extra-institutional involvements by students' race, gender, generational status in the U.S., pre-college annual household income, pre-college academic aptitude, pre-college educational aspirations, sibling post-secondary attainment, and frequency of pre-college engagement in cultural capital activities?

### **Description of Sample**

Quantitative analysis of the research questions was based on the responses of students surveyed via the National Longitudinal Survey of Freshmen (NLSF) administered by the Office of Population Research (OPR) at Princeton University. Beginning in the fall of 1999 (with subsequent survey waves administered in the spring of 2000, 2001, 2002, and 2003), OPR launched the NLSF with a stratified, probability sample of 3,924 (i.e., 86.0% response rate) first-time students entering selective U.S. colleges/universities (Massey, Charles, Lundy, & Fischer, 2003; NLSF, n.d.a). Initially, OPR invited 35 institutions to participate, which reflected, in large part, the colleges and universities studied by Bowen and Bok (1998) (as cited in Massey et al.) in their *College and Beyond* Survey, but the final sample was drawn from the freshmen rolls of 28 institutions (Massey et al.; NLSF, n.d.b). The list of participating institutions is included in Appendix A. Of the seven institutions that did not participate, five (i.e., Duke, Hamilton, Wellesley, Vanderbilt, and Xavier) declined the invitation and two (i.e., Morehouse and Spelman) had logistical issues with providing a list of freshmen for the study (NLSF). The nonparticipation of Xavier, Morehouse, and Spelman reduced the

number of historically Black institutions (HBCUs) in the study from four to one and was, therefore, cited as a study limitation by Massey et al. Further discussion of this limitation will be broached in the final chapter of this study.

The OPR's study priorities included the underachievement of students of color in college, therefore, equal numbers of African American/Black, Hispanic or Latino/a, Asian, and Caucasian/White students were sampled at each institution (NLSF, n.d.a). Additionally, institutional samples were stratified by the relative size of the African American/Black student population on campus (i.e., campuses with higher numbers of African American/Black students were assigned a larger target sample size) (NLSF). The final NLSF study sample was comprised of 1,051 African American/Black students, 916 Hispanic or Latino/a students, 959 Asian students, and 998 Caucasian/White students (NLSF). Students who were not U.S. citizens or resident aliens were excluded from the sample. Of the 3,924 students in the NLSF sample, this study focused on a smaller sample of first-generation students who earned bachelor's degrees.

In this study, first-generation student status was determined using parental education as assessed by the NLSF in fall of 1999 when students were incoming freshmen. NLSF survey items "w1q151" and "w1q152" asking students their mother's (or female guardian) and father's (or male guardian), respectively, highest level of education were utilized. First-generation status was determined by responses of "high school graduate" or less for both parents' highest level of educational attainment. Additionally, given that the explicit focus of this study was to determine the factors that contributed to persistence, the first-generation sample was further filtered to include students who completed their undergraduate degrees in six or fewer years (i.e., by 2005



or earlier) as represented by NLSF item “overallg.” Specific NLSF measures used to determine the first-generation student sample are outlined in Table 1.

Once the preliminary filters were applied to the dataset and specific measures critical to the study analysis were identified, the dataset was further cleaned. The researcher established a standard protocol for cleaning the dataset which began with consulting each of the wave-specific NLSF codebooks to determine how missing values and respondent refusals for the variables of interest were categorized by OPR. Once the appropriate codes for un-useable responses were determined, the researcher utilized both sorting and filtering features in SPSS and MS Excel to locate and remove cases with missing or refusal values. In addition to consulting the codebooks, and in an effort to be thorough, the researcher scrutinized each variable of interest independently, removing cases for which missing and refusal values were present but for which codes had not been established in the NLSF codebooks. Once filtered and cleaned, the student sample included 103 participants. Females comprised over half of the sample (63.1%,  $n = 65$ ) while males numbered 38, equating to 36.9% of the sample. With regard to race, students of color represented 82.6% ( $n = 85$ ) of the first-generation college student sample. Full race distributions for the sample follow: 43.7% Hispanic or Latino/a ( $n = 45$ ), 24.3% Asians ( $n = 25$ ), 17.5% Caucasian/White ( $n = 18$ ), and 14.6% Black/African American ( $n = 15$ ). Additional demographic and background details for the sample will be provided in the sample characteristics section of chapter four.

While modest in size, this study’s sample allowed for an intentional exploration of first-generation students. Additionally, given the deliberateness of the overall NLSF sampling strategy, the first-generation student sample facilitated a robust representation

of students of color in the findings, which was critical to this study given the scholarship noting the high proportion of first-generation students of color (Brown & Burkhardt, 1999; Bui, 2002; Chen, 2005; Choy, 2001; Horn & Nuñez, 2000). However, it is important to note that the NLSF sampling strategy could have also prompted an over-representation of students of color in the first-generation sample, thus, skewing the study findings. Further, while the NLSF team was diligent in its inclusion of a substantial representation of students of color (i.e., African American/Black, Hispanic or Latino/a, and Asian students), it was limited by its exclusion of students identifying with other races/ethnicities (e.g., Native American, multi-racial).

In addition to being limited with regard to full racial diversity, the NLSF data set and, as a result, this study's sample, was limited by its exclusion of students enrolled at institutions other than selective colleges and universities in the U.S. The sample did not include students matriculated at a broader classification of colleges/universities (e.g., community or for-profit colleges), which may enroll a substantial number of first-generation students. Finally, and importantly, this study sample was limited in that, regardless of the NLSF project team's best efforts to retain all students who participated in the original 1999 administration, student attrition, presumably due to student stop outs, relocations, and other possible life events, did occur between 1999 and 2003.

### **Research Design**

A correlational *ex post facto* research design was attempted in this study given that use of the NLSF data sought to determine the factors that contributed to first-generation college students' undergraduate persistence and graduate educational aspirations. Although this *ex post facto* research design could not prove cause and effect

with regard to factors and outcomes, the correlational nature was appealing given its potential for providing substantial insight into the relationship between variables.

Additionally, while true experimentation was not feasible given the secondary nature of the design, the existing data presented a rich portrait of each respondent and allowed for varied analyses. Further, despite the limitations of the research design discussed above, the NSLF was an appealing tool for this study given its multi-institutional, longitudinal construction, which, as cited by Astin (1970), presented the most appropriate manner in which to study the contributions of college impact based on inputs, environments, and outcomes. Moreover, for the most part, students who stopped out of college or transferred to another college during the study were tracked and remained in the study regardless of their place in the educational process (Massey et al., 2003). Thus, these data allowed for a more systemic approach to persistence.

### **Description of Instrument and Measures**

**Instrumentation.** As noted earlier, the primary rationale for the design and administration of the NLSF was to examine a wide range of theoretical explanations for the underachievement of students of color in higher education. These theoretical explanations included theories of capital deficiencies, oppositional culture, stereotype threat, peer influence, and attachment (Massey et al, 2003). Given this broad spectrum of potential explanations for underachievement, each of the five waves of the instrument was designed to gather extensive and comprehensive information about the respondents. The number of items included in the NLSF instruments ranged from 155 in the baseline instrument administered in the fall of 1999 to approximately 100 in the fifth follow-up survey deployed in the spring of 2003. OPR approval for the reproductions of the

instruments deployed in all waves was granted to this study's researcher and, as such, are included in Appendices B through F of this document.

For the baseline instrument administered in fall 1999, respondents were asked a number of questions about life prior to college in an effort to measure initial attitudes, perceptions, and motivations (Massey et al., 2003). A number of questions were phrased retrospectively and included a variety of items on topics such as parental involvement and employment, social and cultural capital, the condition of home, school, and neighborhood, quality and types of friendships, racial/ethnic attitudes, and educational aspirations. The baseline offered a variety of question formats including Likert, multiple choice, and open-ended formats. The follow up surveys, however, were more focused and required less time. Question formats for the follow up surveys included multiple choice and Likert designs and asked respondents about topics such as courses, grades, living arrangements, financial matters, interfering problems, attitudes toward college, perceptions of prejudice, and work, study, and social habits (Massey et al.).

Given the importance of the baseline and first follow-up surveys as cornerstones for the NSLF, the validity and reliability of items on both instruments were established over the period of one year. With regard to content validity, the NLSF design team became immersed in the literature to guarantee that the survey items aligned with and were grounded in theoretical nuances (Massey et al., 2003). Further, face validity was addressed by conducting extensive, in-depth interviews with students, faculty, and administrators at the University of Pennsylvania, one of the participating institutions. Additionally, the baseline was administered to a pilot group of freshmen at the University of Pennsylvania in fall 1998, and the follow-up was administered to the same students in

spring 1999 (Massey et al.). Students invited to participate in the pilot group reflected the desired demographics for the actual administration and included 130 African American/Black students, 98 Hispanic or Latino/a students, 130 Asian students, and 130 Caucasian/White students; response rates ranged from 65% for Hispanic or Latino/a students to 82% for African American/Black students (Massey et al.).

Results gleaned from these pilot tests provided fodder for testing the instrument items' reliability in self-reporting. Specifically, student responses on topics such as grades and parental income were correlated with actual data provided by Registrars and Offices of Financial Aid. With respect to students' earned grades, researchers found that the correlation between reported and recorded grades (i.e., .894) was strong with perfect agreement between actual and self-reported figures in 82.8% of cases. Researchers also discovered that the correlation for student-reported and actual parental income was .70. Yet, despite its robustness, the NLSF team was more cautious with this figure given the variability in correlations across different racial groups. Overall, however, taking the unreliability of some student self-reports into account, the assessment provided the NLSF team with valuable insight into item accuracy. Further, it equipped researchers with the appropriate information to be optimistic about the strength of some relationships and more conservative in their evaluation of less robust associations (Massey et al., 2003).

***Rationale for instrument use and critique.*** Given the details shared above, the NLSF inquired both deeply and broadly with respect to the student experience and, thus, differentiated itself from other secondary data sets. The NLSF appealed to the researcher for a number of reasons to include its longitudinal, systemic approach to persistence as well as the fact that it not only focused on students' college experiences, but it also honed

in on experiences in the pre-college years as well as ambitions/aspirations following college graduation. While the second (spring 2000) through fifth waves (spring 2003) focused primarily on college life, courses, grades, social experiences, finances, involvements, and future plans, the researcher appreciated the rigor with which the first wave (fall 1999) sought a holistic picture of each student beginning with childhood. Further, in its deployment of a robust set of retrospective questions inquiring about grade school, middle school, and high school life, the data set also fed cultural capital indicators—a research dimension that made the NLSF quite desirable for this study.

While the NLSF data set was well-aligned with the researcher's needs and appealing in a myriad ways, it also gave pause with regard to the manner in which it managed socially sensitive questions. This critique is especially salient for the questions included in the first wave in the fall of 1999. Given the NLSF's thrusts, the first wave asked students a number of questions regarding their perceptions about the stereotypes associated with various races as well as senses of prejudice. The approach to some of these questions straddled the line, in the researcher's opinion, between collecting good and helpful data and advancing students' negative perceptions with regard to race. For example, in an effort to examine stereotypes, a set of wave one items asked students to rate White, Black, Asian, and Latino individuals on certain characteristics and included descriptors such as "lazy or hardworking," "unintelligent or intelligent," "self-supporting or living off welfare," and "honest or dishonest." While employed to collect candid information, the language used in these items was jarring. Perhaps the word choices speak to both the age of the instrument and the advances in more socially just ways of engaging with survey respondents around sensitive issues. This critique of the NLSF

instrument is a reminder that the instrument has incredible value but, similar to many other instruments, is also prone to challenges, which should be fully considered.

**Conceptual framework and measures.** As discussed in chapter two, this study's conceptual framework was scaffolded by Astin's (1970, 1993) I-E-O model, Astin's (1984, 1993, 1996) theory of involvement, Bean and Metzner's (1985) Non-Traditional Undergraduate Student Attrition Model, and Bourdieu's (1977) concepts of cultural capital and habitus. This framework provided context for the study variables and rationale for which NLSF survey items were used to operationalize study variables.

***Student background characteristics: Inputs.*** The independent variables of student race and gender were assessed using NLSF items "w1qzeth" and "sex," respectively, as posed in fall 1999. While the original NLSF codebook noted that "w1qzeth" measured "ethnicity," the researcher changed this measure to race to represent data more accurately. Additionally, while the original NLSF codebook used the term "sex," the researcher changed this measure to "gender" in an effort to be more inclusive of students' identities. Both the race and gender variables were nominal in nature, and, as such, were re-coded into more standard categorical variables (See Table 1).

An additional student background variable, annual pre-college household income, also measured in 1999, was operationalized via survey item "w1q179." For this item, students were asked to disclose their best retrospective estimate of household income in their senior year of high school by opting for one of 14 response choices ranging from "under \$3000" to "\$75,000 or more" annually. The researcher acknowledges that this range lacked granularity with regard to students' whose pre-college annual household incomes were larger than \$75,000 but included the variable

given its best representation of economic status at college entry. However, in an effort to make the variable more amenable to analysis, the researcher consolidated and re-coded the response choices into four simpler income options, as noted in Table 1.

“Generational status in the U.S.” was also included as an input measure given its indication of students’ identities as “immigrants” or “children of immigrants.” This generational variable was operationalized via the following 1999 NLSF items: a) “fborn” assessing whether or not a student was born in the U.S., b) “w1q166” assessing whether or not the student’s mother was born in the U.S., and c) “w1q167” assessing whether or not the student’s father was born in the U.S. In order to make responses choices across the study consistent, “fborn” was re-coded with “0” representing students born external to the U.S. and “1” representing U.S.-born students. Further, as noted in Table 1, while responses for both w1q166 and w1q167 included country codes for dozens of nations, the researcher consolidated and re-coded response choices with “0” representing foreign countries and “1” representing the U.S.

The student background variable of pre-college academic aptitude was operationalized via students’ SAT verbal/SAT quantitative (i.e., “w3q28a”/“w3q28b”) or ACT composite (i.e., “w3q28c”) scores as retrospectively reported by sophomores in spring 2001 (i.e., wave 3). The test scores question allowed for an open response ranging from “0 to 800” for both SAT questions and “0 to 36” for the ACT question. In an effort to streamline data analysis and to simplify interpretability, individual SAT verbal and SAT quantitative/mathematics scores were consolidated into a composite SAT score for each respondent. Additionally, in an effort to ensure that the SAT and ACT scores could be compared, the SAT composite scores were converted to ACT scores using the ACT-



SAT concordance protocol established by Dorans, Lyu, Pommerich, and Houston (1997). These guidelines were created based on ACT and SAT administrations held between October 1994 and December 1996 and were appropriate for use with the NLSF's 1999 college-bound participants. Additional details regarding specific data analysis procedures are provided in the "Data Analyses" section of this chapter.

The sixth student background variable of interest concerned students' pre-college educational aspirations, as measured in fall 1999. Though measured while students were entering college, this variable served as a pre-college input given that students disclosed these aspirations so early on in the college-going process. These aspirations were assessed via NLSF variable "w1q90" for which response choices ranged from "I plan to take college one year at a time..." to "I plan to graduate from college and go to graduate or professional [school]." The researcher simplified these response choices and recoded them to include three response options ranging from "don't know" (coded as "0") to "finish master's or other professional degree" (coded as "2").

In addition to pre-college educational aspirations, students' sibling post-secondary educational attainment was also examined. Research has shown that college-going/completing siblings may help facilitate the post-secondary process for brothers and sisters, and, thus, attenuate the "first-generation" experience (Ackers-Ball, 2007; Attinasi, 1989; Ceja, 2006). As such, it was critical that sibling education be included as a control in this study. In an effort to operationalize the variable, NLSF items "w1q161" and "w1q164" were utilized. The items asked students to report their a) number of siblings aged 18 or over and b) number of sibling college graduates, respectively. For both items, the original response choices were "none" and a write-in of "one to twenty siblings." In

an effort to streamline analysis, the researcher recoded responses. Answers of “none” were equated to “no/0” and answers of one or more were equated to “yes/1.” The purpose of item “w1q161” was to explain missing values in “w1q164”; the researcher assumed that answers of “none” in “w1q161” held for “w1q164” and, thus, enabled the researcher to impute values for cases that would, otherwise, have been deleted.

The final input, students’ frequency of pre-college engagement in cultural capital activities was measured by the “culcap” variable representing the Index of Parental Involvement in Formation of Cultural Capital created by OPR ( $\alpha = .886$ ) using data collected from students in the fall of 1999. While full details regarding the individual items incorporated in this index may be found in Table 1, at a high level, this item measured student participation in cultural activities (e.g., attending concerts, visiting museums and science centers) from age six to 18. Student response choices ranged from zero to four representing “never” to “always” in terms of participation.

With regard to the “culcap” index, the NLSF appealed to the researcher, in substantial part, because of the instrument’s attention to cultural capital and inclusion of the scale. Yet, while important and compelling, the index necessitates a caveat and some critique. Specifically, as noted above, the scale mostly associated cultural capital-building activities with the beaux arts (e.g., travel, museums), yet, current literature on cultural capital points to the multi-dimensionality of Bourdieu’s (1977) concept. For example, Dumais and Ward (2010) suggested that cultural capital might include both arts-based activities and strategic learning (e.g., completing college application). Thus, while the “culcap” index might represent one understanding of cultural capital, it may not be complete or conventional in more contemporary contexts.

***Institutional characteristics.*** As noted in Table 1 and explained in further detail in later sections of this chapter, institutional characteristics were included in the analyses per Astin's (1993) recommendations. For this study, institutional characteristics included college type and total college cost. College type was operationalized using fall 1999 NLSF item "college," which reported whether students were attending a) liberal arts colleges, b) private research universities, or c) public research universities. Response choices were categorical in nature, and, per Table 1, were not re-coded. The second institutional characteristic variable of interest was total college cost. This variable was operationalized via a summation of supplemental OPR data collected from U.S. News and World Report for the 1998-1999 academic year. The researcher summed the 1998-1999 out-of-state cost of undergraduate tuition/fees for each respondent (i.e., "tuit9899") and the 1998-1999 cost of undergraduate room and board for each respondent (i.e., "room9899"). Once raw dollar figures were determined for each respondent, the researcher translated the continuously scaled data into categorical data via re-coding into three response choices ranging from "Under \$20,000/year" to "\$30,000 or more/year." Details pertaining to exact figures and re-coding can be found in Table 1.

***Student involvements: Environments.*** In order to examine the relationship between first-generation college students' intra- and extra-institutional involvements and college outcomes, the researcher analyzed these interactions as measured by NLSF items deployed, with some exception, in wave two (i.e., spring 2000) when students were second-semester freshmen. Choy (2001), in her nationally representative study, found that first-generation students were more likely to depart college after year one. Thus, first-year data should foster a better understanding of the transition vulnerabilities salient

to freshmen, first-generation college students (e.g., Davis, 2010; Koch, 2008) and, potentially, serve a purpose in deciphering contributions to outcomes.

*Intra-institutional involvements.* Given the distinction made in the literature between academic-based interactions and socially-based interactions with peers and faculty (Astin, 1993), the researcher attempted to make a similar delineation in this study given the data available from the spring 2000 NLSF survey administration. This wave of the NLSF included a 25-item set of frequency questions (i.e., “w2q23a-y”), under the heading “Typical Behaviors in College,” which pertained broadly to topics related to students’ interactions with faculty regarding course-related matters, students’ interactions with peers involving academic pursuits, and students’ individual help-seeking behaviors regarding academic needs. The response choices for all items were based on a scale from zero to 10 and ranged from “never” to “always.” Given the large range in response options, the small sample, and the fact that some of the original response choices had no student representation, the researcher consolidated and re-coded the response options, as shown in Table 1, into four categories ranging from “never” to “always.”

In an effort to determine if delineation of types of interaction were possible given the data, in accordance with Astin (1993), the researcher conducted an exploratory factor analysis (also called principle components analysis (PCA)) on the 25 “Typical Behaviors in College” items. However, in order to ensure that PCA was a suitable approach for the items and that the data were indeed “factorable,” the researcher, per Pallant’s (2007) guidance, first investigated Bartlett’s test of sphericity and the Kaiser-Meyer-Olkin (KMO) index of sampling adequacy via SPSS to ensure adequate correlation among the desired index variables. A significant outcome (i.e.,  $p < .05$ ) for Bartlett’s test and a

minimum score of .6 (within a possible range of zero to one) for the KMO index would signal the appropriateness of factor analysis. The “Typical Behaviors in College” items were factorable: the Bartlett test yielded  $p=.000$  and the KMO index score was .774.

Once it was determined that factorability was feasible given item correlations, the researcher utilized SPSS to commence with factor extraction using the PCA method. The researcher set the following PCA parameters for the “Typical Behaviors in College” item set: Orthogonal factor rotation; pairwise exclusion of missing cases; and suppression of factor loadings under .4 to aid in interpretation. As assessment of the resulting PCA variances indicated that seven components were extracted, i.e. seven components emerged with eigenvalues above one and explained 64.8% of the variance. In an effort to determine which of these seven components should be retained, the researcher examined the accompanying scree plot. A conservative assessment of the plot revealed that component one captured the majority of the variance (i.e., 26.7%), but, given the exploratory nature of this study and the allowance for such by the scree, components two, three, and four also emerged as important. Together, these four components explained 50.4% of the variance. A review of the PCA rotated component matrix also confirmed the potency of components one, two, three, and four.

Of the four components that emerged, one was representative of students’ interactions with faculty and one was representative of students’ interactions with each other. With regard to faculty interactions, no delineation was evident between academic and social, the factor was comprised of the following five items with factor loadings of .666 through .823: a) respondent asks professors questions in class, b) respondent asks professors questions in lecture, c) respondent asks professors questions after class, d)

respondent sees professors in their offices and asks questions, e) respondent sees professors in their offices and talks about issues other than class. This student-faculty interaction scale (variable “SF\_Int” in Table 1) was assessed for reliability and Cronbach’s alpha was equivalent to .816. With regard to peer interactions, the factor was comprised of the following five items with factor loadings of .663 through .841: a) respondent studies with other students, b) respondent organizes study groups, c) respondent gets academic help from peers. This student-student academic interaction scale (variable “SS\_AcInt” in Table 1) was assessed for reliability and Cronbach’s alpha was equivalent to .771.

While the spring 2000 “Typical Behaviors in College” item yielded a factor dedicated to academically-oriented peer interactions, socially-based peer involvement was operationalized via the more optimal spring 2000 NLSF item “w2q21k.” This item explicitly asked students about the frequency with which they socialized with friends on a weekly basis. Response choices included open replies from zero to 120 hours, but the researcher re-coded the open response options into five categories each representing 10 hours (approximately) in an effort to provide more discrete analysis.

In addition to peer and faculty interactions, intra-institutional involvement variables also included co-curricular participation and faculty mentorship. The spring 2000 NLSF survey item “w2q21c,” which asked students about the frequency with which they participated in extra-curricular activities on a weekly basis, was used to operationalize co-curricular involvement. While the response choices included open replies from zero to 120 hours, the researcher re-coded the open response options into five categories, each representing 10 hours, as a means to improve analytical nuance.

With respect to faculty mentorship, given the literature base equating mentorship to support and guidance, the researcher examined a 10-item question set included in the spring 2003 administration of the NLSF (i.e., “w5q42a-j”) asking students how important certain people (e.g., professors, resident advisors, career counselors) were in guiding them through their college careers. The response choices for all items were based on a scale from zero to 10 and ranged from “unimportant” to “greatly important.” Given the substantial range in response options, the modest study sample size, and the fact that some of the original response choices had little or no student representation, the researcher, as shown in Table 1, consolidated and re-coded the response options into four categories ranging from “unimportant” to “greatly important.”

In an effort to determine if faculty emerged as an influential group from the 10-item question set on guidance, the researcher proceeded with PCA. However, as before, in order to ensure that PCA was a viable approach for the items, the researcher first investigated Bartlett’s test of sphericity and the KMO index of sampling adequacy. The results of both measures, as indicated by SPSS output, ensured that the items were factorable: the Barlett test indicated  $p=.000$  and the KMO index score was .725.

Once it was determined that factorability was feasible, the researcher employed SPSS to commence with factor extraction using PCA. The researcher set the following PCA parameters for the guidance item set: Orthogonal factor rotation; pairwise exclusion of missing cases; and suppression of factor loadings under .4. An examination of the resulting PCA variances indicated that three components with eigenvalues above one were extracted and explained 63.3% of the variance. In an effort to determine which of these three components should be retained, the researcher examined the associated scree

plot. Once again, a conservative assessment of the plot revealed that component one captured the majority of the variance (i.e., 33.4%), but, given this study's exploratory nature and the allowance for such by the scree, components two and three also emerged as compelling. Together, these three components explained 63.3% of the variance. The rotated component matrix confirmed the viability of components one, two, and three.

Of the three components that emerged, one pointed to students' perceptions of the importance of faculty guiding them through their college careers. The factor was comprised of the following three items with factor loadings of .570 through .893: a) professors in major courses, b) professors in general, and c) major advisors. Interestingly, the factor not only included professor guidance but it also included guidance by major advisors. Given that faculty often take on the role of advisors (Baker & Griffin, 2010; Light, 2001), this association was not surprising and provided rationale for the inclusion of "major advisor" in this faculty mentoring scale. This faculty/advisor mentoring scale (variable "Fac\_Ment" in Table 1) was assessed for reliability and Cronbach's alpha was equivalent to .742. Results of analyses dependent on this scale and others created for this study will be conveyed in the following chapter.

Additional details regarding the specific NLSF measures that were analyzed in an effort to further an understanding of first-generation college students' involvement with intra-institutional environments are noted in Table 1.

*Extra-institutional involvements.* The extra-institutional involvement measures included a) student-parent interactions and b) student perceptions of the importance of family support in guiding them through their college careers. Student-parent interactions were explored using spring 2000 NLSF item "w2q17a," which assessed the frequency



with which students left campus to visit their parents in the previous fall term. Response choices ranged from zero to 100 times, allowing students to provide an open answer. The researcher re-coded the open response options into five categories, each representing 10 hours (approximately), in an effort to provide more discrete analysis.

The second extra-institutional measure of “family support” was explored in this study using student perceptions of the importance of family support in guiding them through their college careers (spring 2003 item “w5q42j”). This retrospective item was chosen given its operationalization of the exact variable of interest above and beyond items posed to students in the spring 2000 deployment of the NLSF instrument. Response choices were based on a scale from zero to 10 and ranged from “unimportant” to “greatly important.” Given the large range in response options, the small sample, and the fact that some of the original response choices had no student representation, the researcher consolidated and re-coded the response options into four categories ranging from “unimportant” to “greatly important.” Specific coding details for this item as well as particulars for all the extra-institutional involvement measures are available in Table 1.

*Intra/extra-institutional involvements.* Intra/extra-institutional involvements have been defined as involvements occurring in the on-campus and/or off-campus environments. As such, both students’ weekly hours of employment and living arrangements were explored in this context. The researcher examined the role of employment in students outcomes via spring 2000 NLSF items “w2q27” and “w2q28b.” Item “w2q27” asked students whether or not they had worked for pay during the academic year, and item “w2q28b” asked students to report the specific number of hours per week. As indicated in Table 1, the student response option for this item was open,

ranging from one to 60 hours. The researcher re-coded the options into four categories, each representing 10 hours (approximately), in an effort to provide more discrete analysis and comparability with current literature. The purpose of item “w2q27” was to explain missing values in “w2q28b”; the researcher assumed that answers of “zero” in “w2q27” held for “w2q28b” and, thus, enabled the researcher to impute values for cases that would, otherwise, have been deleted. Specific item details for intra/extra-institutional involvements, including response recodes, are available in Table 1.

In addition to exploring employment, this study examined the contribution of students’ first-year living arrangements to persistence and aspirations for graduate study via the spring 2000 NLSF item “w2q11.” Response choices included options such as “on-campus dormitory,” “fraternity/sorority house,” or “with parents.” Given the large range in response options, the small sample, and the fact that some of the original response choices had no student representation, the researcher consolidated and re-coded the response options into three categories (as shown in Table 1).

***Student outcomes.*** The outcome of undergraduate persistence (i.e., undergraduate degree attainment) was operationalized using the NLSF variable “overallg,” which conveyed whether or not students had graduated within six years of beginning college (i.e., by spring of 2005). While respondents did not self-report graduation data, the OPR worked with the offices of the registrar at the 28 institutions studied as well as the National Student Clearinghouse to ascertain degree completion information for 3,914 out of 3,924 participants in the NLSF (NLSF, 2008). NLSF item descriptions and response choices for the persistence variable are detailed in Table 2.

The study's second outcome of interest, graduate educational aspirations was assessed in the fifth wave of the NLSF administered in the spring of 2003 during students' senior years. The aspirations item, noted as "w5q61," asked students to identify the highest degree they expected to obtain, and responses ranged from "less than a BA" to a "Ph.D., MD, LLD, or Equivalent." The researcher simplified these response choices and recoded them to include four response options ranging from "don't know" (coded as "0") to "finish Ph.D. or other professional degree" (coded as "3"). Table 2 details the recoded response choices for this advanced degree aspirations variable.

Table 1

*Description of Study Independent Variables*

Study Variable (Study Label in Parenthesis)	NLSF Item(s)	NLSF Item Description (As created by OPR)	Year(s) Measured	NLSF Item Response Choices	Study Response Recode/Response Utilization
<b>Student Pre-College Background Characteristics (Inputs)</b>					
First-generation college student status (First_Gen)	w1q151	Highest level of schooling achieved by R's mother or the woman most responsible for raising R.	1999 (Wave 1) R as first-semester college freshman	1 Grade School 2 Some High School 3 High School Graduate 4 Some College 5 College Graduate 6 Some Post-Graduate 7 Graduate Or Professional Degree 8 Don't Know 95, 97, 98 No Response	N/A (8, 95, 97, 98 removed)
	w1q152	Highest level of schooling achieved by R's father or the man most responsible for raising R.			
Race <sup>a</sup> (Race)	w1qzeth	R's ethnicity.	1999	B Black/African American W Caucasian/White A Asian H Hispanic or Latino/a	1 Asian 2 Black/African American 3 Caucasian/White 4 Hispanic or Latino/a
Gender <sup>b</sup> (Gender)	Sex	Sex.	1999	M Male F Female	1 Male 2 Female
Generational status in the U.S. (USGen_Stat)	fborn	R born in the U.S.	1999	1 Yes 2 No 996 Other 966, 997, 998 No Response	0 No 1 Yes (966, 996, 997, 998 removed)
	w1q166	R mother's country of birth.		1 United States 60-990 Country Codes 999 Other 996 Unable To Determine Location 997, 998 No Response	0 Not U.S. 1 U.S. (996, 997, 998, removed)
	w1q167	R father's country of birth.			

Study Variable	NLSF Item(s)	NLSF Item Description (As created by OPR)	Year Measured	NLSF Item Response Choices	Study Response Recode/Response Utilization
<b>Student Pre-College Background Characteristics (Inputs)</b>					
Pre-college annual household income (PC_Inc)	w1q179	Estimate of R's annual household income as a senior in high school.	1999	1 Under \$3,000 2 \$3,000 - \$3,999 3 \$4,000 - \$4,999 4 \$5,000 - \$5,999 5 \$6,000 - \$6,999 6 \$7,000 - \$7,999 7 \$8,000 - \$8,999 8 \$9,000 - \$14,999 9 \$15,000 - \$19,999 10 \$20,000 - \$24,999 11 \$25,000 - \$34,999 12 \$35,000 - \$49,999 13 \$50,000 - \$74,999 14 \$75,000 or More 97, 98 No Response	1 Under \$25,000 2 \$25,000-\$49,999 3 \$50,000-74,999 4 \$75,000 or More (97, 98 removed)
Pre-college academic aptitude (PC_AcApt)	w3q28a	R's SAT verbal score.	2001 (Wave 3)	0-800	Combined and converted into ACT scores (997, 998 removed)
	w3q28b	R's SAT quant. score.	R as second-semester sophomore	997, 998 No Response	
	w3q28c	R's ACT composite score.	2001	0-36 997, 998 No Response	
Pre-college educational aspirations (PC_EdAsp)	w1q90	Statement that best describes R's current aspirations.	1999	1 1 Plan To Take College One Year At Time And See How I Do 2 1 Plan To Graduate From College And Then Consider My Options 3 1 Plan To Graduate From College And Go To Graduate Or Professional [School] 0 None 1-20 One To Twenty Siblings 98 No Response	0 Don't Know 1 Finish Bachelor's 2 Finish Master's or other professional degree
Sibling post-secondary attainment (Sib_Attain)	w1q161	Number of R's siblings aged 18 or over.	1999	0 None 1-20 One To Twenty Siblings 98 No Response	0 None 1 One or More (98 removed)
	w1q164	Number of R's siblings who have graduated from college.			

Study Variable	NLSF Item(s)	NLSF Item Description (As created by OPR)	Year Measured	NLSF Item Response Choices	Study Response Recode/Response Utilization
<b>Student Pre-College Background Characteristics (Inputs)</b>					
Frequency of pre-college engagement in cultural capital activities (PC_CulCap)	culcap (Based on NLSF Index of Parental Involvement in Formation of Cultural Capital)	How often R's parents or other adults in R's household did the following: <b>Age 6</b> Took R to museum Took R to science center Took R to zoo or aquarium Took R traveling abroad <b>Age 13</b> Took R to museum Took R to science center Took R to plays or concerts Took R traveling abroad <b>Age 18</b> Took R to museum Took R to plays or concerts Took R traveling abroad  $\alpha = .886$	1999	1 Never 2 Rarely 3 Sometimes 4 Often 5 Always	0 Never 1 Rarely 2 Sometimes 3 Often 4 Always
<b>Institutional Characteristics</b>					
College type (Coll_Type)	college	Type of college attended.	1999	1 Liberal Arts College 2 Private Research University 3 Public Research University	N/A
Total college cost (Coll_Cost)	tuit9899	Cost of undergraduate tuition/fees at R's college, 1998-1999.	1998-1999	Not self-reported. Data gathered by OPR from U.S. News and World Report and ranged in discrete categories from \$9155.00 to \$24050.00 for the 1998-1999 academic year.	Tuit9899 and room9899 summed and the total coded as follows for the 1998-1999 academic year: 1 Under \$20,000 2 \$20,000 - \$29,999

	room9899	Cost of undergraduate room and board at R's college, 1998-1999.			Not self-reported. Data gathered by OPR from U.S. News and World Report and ranged in discrete categories from \$4110.00 to \$8898.00 for the 1998-1999 academic year.	3 \$30,000 or More
Study Variable	NLSF Item(s)	NLSF Item Description (As created by OPR)	Year Measured	NLSF Item Response Choices	Study Response Recode/Response Utilization	
Intra-Institutional Involvements (Environments)						
Student-student academic interaction (SS_AcInt)	w2q23a-y	Three items from twenty-five-item "Typical Behaviors in College" question set. In general, how often R does the following: R studies with other students, R organized study groups, R gets academic help from peers  $\alpha = .771$	2000 (Wave 2) R as second-semester freshman	0 Never to 10 Always 97, 98 No Response	0 Never to 4 Always (97, 98 removed)	
Student-faculty interaction (SF_Int)	w2q23a-y	Five items from twenty-five-item "Typical Behaviors in College" question set: R asks professors questions in class, R asks professors questions in lecture, R asks professors questions after class, R sees professors in their offices and asks questions, R sees professors in their	2000	0 Never to 10 Always 97, 98 No Response	0 Never to 4 Always (97, 98 removed)	

		offices and talks about issues other than class $\alpha = .816$				
Study Variable	NLSF Item(s)	NLSF Item Description (As created by OPR)	Year Measured	NLSF Item Response Choices	Study Response Recode/Response Utilization	
<b>Intra-Institutional Involvements (Environments)</b>						
Student-student social interaction (SS_SocInt)	w2q21k	R's estimate of the total number of hours spent doing following in past week: Socializing with friends.	2000	0 None/No hours 1-120 Hours 997, 998 No Response	0 Zero Hours 1 1-9 Hours 2 10-19 Hours 3 20-29 Hours 4 30 or More Hours (997,998 removed)	
Co-curricular involvement (CoCurr_Inv)	w2q21c	R's estimate of the total number of hours spent doing following in past week: Doing extracurricular activities	2000	0 None/No hours 1-120 Hours 997, 998 No Response	0 Zero Hours 1 1-9 Hours 2 10-19 Hours 3 20-29 Hours 4 30 or More Hours (997,998 removed)	
Faculty/Advisor mentorship (Fac_Ment)	w5q42a-j	Three items from ten-item question asking students how important certain people (e.g., professors, resident advisors, career counselors) were in guiding them through their college careers: Professors in major courses Professors in general Major advisors $\alpha = .742$	2003 (Wave 5) R as second-semester senior	0 No importance 10 Greatest importance 95, 97, 98 No Response	0 No importance 4 Greatest importance (95, 97, 98 removed)	



Study Variable	NLSF Item(s)	NLSF Item Description (As created by OPR)	Year Measured	NLSF Item Response Choices	Study Response Recode/Response Utilization
<b>Extra-Institutional Involvements (Environments)</b>					
Student-parent interaction (SP_Int)	w2q17a	During the fall term, how many times, if ever, did R visit his/her father or mother?	2000	0 None 1 1-100 Times 997, 998 No Response	0 Zero Hours 1 1-9 Hours 2 10-19 Hours 3 20-29 Hours 4 30 or More Hours (997,998 removed)
Perceptions of family support (Fam_Supp)	w5q42j	How important have the following been in guiding R through college career: Family members.	2003	0 No importance 10 Greatest importance 95, 97, 98 No Response	0 No importance 4 Greatest importance (95, 97, 98 removed)
<b>Intra/Extra-Institutional Involvements (Environments)</b>					
Living arrangements (Liv_Argmts)	w2q11	Where does R currently live.	2000	1 On-campus dormitory 2 Off-campus dormitory 3 On-campus apartment 4 Off-campus apartment 5 Fraternity/sorority house 6 With your parents 7 With another relative 8 What is your living arrangement? 97, 98 No Response	1 On-campus dormitory or apartment 2 Off-campus dormitory or apartment 3 Off-campus with parents or another relative (8, 97, 98 removed)
Employment (Emp_Hrs)	w2q27	At any time during the current academic year, have you worked for pay?	2000	1 Yes 5 No 7, 8 No Response	0 No 1 Yes (7, 8 removed)
	w2q28b	On average, about how many hours a week did R work since Fall classes began?		1-60 Hours 97, 98 No Response	0 Zero Hours 1 1-10 Hours 2 11-20 Hours 3 21 or More Hours (97, 98 removed)

<sup>a</sup>NLSF item descriptor was “ethnicity;” researcher changed variable name to “race” in an effort to represent data more accurately.

<sup>b</sup>NLSF item descriptor was “sex;” researcher changed variable name to “gender” to be more inclusive of student identity

Table 2

*Description of Study Dependent Variables*

Study Variable	NLSF Item(s)	NLSF Item Description (As created by OPR)	Year Measured	NLSF Item Response Choices	Study Response Recode/ Response Utilization
<b>College Outcomes</b>					
Under-graduate persistence (UG_Persist)	overallg	R graduated within 6 years of beginning college.	2005 R 6 years after beginning college	0 Not graduate from college 1 Graduated from college	N/A
Graduate educational aspirations (Grad_EdAsp)	w5q61	At this point in R's college career, highest degree R expects to obtain.	2003	1 Less Than a BA 2 BA or BS 3 MA or Equivalent (MBA, MPH, MSW, etc.) 4 Ph.D. 5 MD, LLD, or Equivalent 7 Refused 8 Don't Know 9 Other, unable to recode	0 Don't Know 1 Finish Bachelor's or Less 2 Finish Master's 3 Finish Ph.D. or other professional degree (7, 9 removed)

## **Data Collection Procedures**

The NLSF study launched its baseline survey in fall 1999 with participation from 28 selective college and universities across the U.S. The 3,924 participants who responded to OPR's initial invitation to participate in the NLSF represented an 86% return rate. The students who completed the 1999 baseline study but who stopped out of college or transferred to another college or university were tracked and, for the most part, remained in the study regardless of their place in the educational process (Massey et al., 2003). The study team's efforts to track students resulted in robust response rates for all NLSF survey waves. The response rate for the second survey wave (spring 2000) was 95.0% (N=3,728), while the response rates for the third (spring of 2001), fourth (spring of 2002), and fifth (spring of 2003) waves were 89.0% (N=3,475), 84.0% (N=3,280), and 79.0% (N=3,098), respectively (NLSF, n.d.b).

The first wave of the NLSF, deployed in the fall of 1999, surveyed participants as they were beginning their freshman year and was administered via a face-to-face, Computer-Assisted Personal Interview (CAPI) for which respondents received a payment of \$15.00 (Massey et al., 2003). Given the vast number of retrospective and open questions in the baseline instrument, the survey took an average of two hours to complete. The follow up surveys were administered in the spring semester of the participants' freshman (i.e., 2000), sophomore (i.e., 2001), junior (i.e., 2002), and senior years (i.e., 2003) and were administered as a Computer-Assisted Telephone Interview (CATI) (Massey et al.). The follow up surveys were more focused than the baseline and required less time (i.e., average of 40 minutes) to complete (Massey et al.), and participants who completed the final survey in spring 2003 did receive a \$20.00 payment.

As noted earlier, in addition to the self-reported data collected via the five survey waves, in the spring of 2005, OPR published graduation data for 3,914 out of the 3,924 original participants. The data reported whether or not students had attained undergraduate degrees within four and six years of beginning college (NLSF, 2008).

### **Data Analyses**

Several statistical methods were employed as a means to analyze the data provided by participants in the NLSF. As a foundation for the analyses, descriptive statistics were utilized to understand more deeply first-generation students' background characteristics such as race, gender, pre-college annual household income, generational status in the U.S., pre-college academic aptitude, pre-college educational aspirations, sibling post-secondary attainment, and frequency of pre-college engagement in cultural capital activities. In an effort to grasp the intersectionality of students' background characteristics, key variables (e.g., race and generational status in the U.S., race and pre-college annual household income) were compared in the context of supporting literature. Additionally, in an effort to understand the differences and similarities between the background characteristics of the first-generation college students in the study and the non-first-generation students in the larger NLSF population, descriptive statistics and Chi-square tests for independence were employed. Finally, from an institutional characteristics standpoint, descriptive statistics enabled an assessment of the type of college attended as well as total college costs estimated for first-generation students. Subsequent analyses were based on the particulars of each research question.

The primary research question sought to determine the factors that contribute to the undergraduate persistence and graduate educational aspirations of first-generation

college students enrolled at elite institutions. From this primary interest, four sub-questions emerged as follows: a) “Do student background characteristics such as race, gender, pre-college annual household income, generational status in the U.S., pre-college academic aptitude, pre-college educational aspirations, sibling post-secondary attainment, and frequency of pre-college engagement in cultural capital activities contribute to undergraduate persistence and graduate educational aspirations?”; b) “Do intra-institutional involvements (i.e., interaction with peers and/or faculty, participation in co-curricular activities, faculty mentorship) contribute to undergraduate persistence and graduate educational aspirations?”; c) “Do extra-institutional involvements (i.e., student-parent interaction, perceptions of family support) contribute to undergraduate persistence and graduate educational aspirations?”; and d) “Do intra/extra-institutional involvements (i.e., employment and living arrangements) contribute to undergraduate persistence and graduate educational aspirations?” Given these questions, the researcher attempted to conduct two separate regression analyses: a) a logistic regression testing the relationship between student inputs and intra- and extra-institutional involvements and the dichotomous undergraduate persistence variable, and b) a multinomial logistic regression examining the relationship between student inputs and intra- and extra-institutional involvements and the polytomous graduate educational aspirations variable.

Regression was chosen for this study given that the research questions were concerned with the contribution of certain factors to study outcomes, or, put more simply, the ability of factors to predict study outcomes. Appropriately, logistic regression uses the maximum likelihood method to form the equation that “best fits” or maximizes the odds that the dependent variable may be predicted from the independent variables (Burns

& Burns, 2008; Garson, 2011). While regression does not provide details on causality such as Structural Equation Modeling (SEM), it was apt for this study given its advantages as a tool for exploratory analysis (Gefen, Straub, & Boudreau, 2000). Further, regression was optimal to the study's research design given its natural alignment with the I-E-O (Astin, 1993) backbone of the study's conceptual framework. In fact, Astin (1991), in assessing the use of SEM with the I-E-O model, noted that, while path modeling was plausible, regression was more desirable given its ability to manage larger numbers of variables and permit simpler focus on environments and outcomes. Interestingly, in a more recent exploration of appropriate statistical methods for multi-campus college impact studies, Astin and Denson (2009) compared the utility of Hierarchical Linear Modeling (HLM) with that of regression and discovered that, for the most part, both models' fit was equally as acceptable. Thus, given these researchers' observations, the use of regression with this study's I-E-O framework was appropriate and consistent with use in previous research endeavors.

As described in chapters one and two, the I-E-O model's main thrust is to determine "whether students grow or change differently under varying environmental conditions" (Astin, 1993, p. 7). In other words, the model seeks to examine the environmental effects that contribute to (i.e., predict) certain student outcomes. However, as Astin purported, in order to analyze the environment's contribution to student outcomes effectively, researchers must "exert as much control as possible over potentially biasing student input variables before examining the possible effects of environmental variables" (p. 90). Thus, isolating input and environment variables into intentionally ordered "blocks" was crucial to this study's original research design.

Given that regression analysis allows for variable blocks to be entered into the model in specific order based on the researcher's scheme for controlling for biasing elements, Astin (1993) asserted that the student input characteristics (e.g., race, gender, pre-college academic aptitude) known before the student interacts with college are most appropriately housed in variable block one. The second block, according to Astin, included "bridge" variables that represented both entering student characteristics and environmental aspects (e.g., financial aid package, major). Institutional characteristics (e.g., size, research classification) comprised the third block, and, finally, measures of student involvement or engagement (e.g., involvement with peers and faculty, volunteer work) with their environments were included in block four. While Astin's original block structure relied on these four components, additional variable blocks may be established in an effort to create more gradation between clusters of inputs or clusters of environments as long as the order of entry remains consistent with control protocols.

For the purposes of this study, independent variables were entered into the regression models in seven distinct blocks, as noted in Table 3, based on Astin's (1993) guidance and the researcher's desire to achieve a granular representation of inputs and environments. Specifically, first-generation student background characteristics were entered into the regression models' first two blocks. Block one included student demographic details and block two included the quasi pre-test, another type of input. Pre-tests are categorized as inputs because they represent a pre-college competency with, or understanding of, a certain outcome and must be included as a means to remove as much bias as possible (Astin). Yet, per Astin, it is not always possible to coordinate a pre-test for all outcomes; as such, in the event that explicit pre-tests are unavailable,

student self-predictions are acceptable. In this study, student perceptions about future education served as a “quasi pre-test” for the graduate educational aspirations outcome given the empirical value of self-predictions (Astin; Pascarella, 2001).

Following the input variable blocks, as noted in Table 3, the researcher included a third block dedicated to the institutional characteristics derived from the data set. Given that bridge measures were not included in this study in an effort to keep the scope targeted and manageable, the next set of blocks included measures of student involvement and engagement (i.e., environments) on- and off-campus. Based on Astin’s (1993) explorations of student interactions with peers and student interactions with faculty as separate and distinct measures, block four included the intra-institutional peer involvements while block five was comprised of the intra-institutional faculty involvements. Block six included extra-institutional involvements with parents and, while it could be suggested that these interactions be situated with student inputs, this block purposefully represented involvements of student socializations *while in college*. Weidman (1989), in alignment with Bean and Metzner (1985), noted that family/parental influences persist while students are enrolled and, thus, may mediate experiences. This same logic prevailed in the construction of block seven, which represented student environments that, though potentially salient pre-college, have potency during college both on campus and in the context of “non-college reference groups” (Weidman). A full representation of each block is detailed below in Table 3.



Table 3

*Variables Associated with Each Block in Study Regression Design*

Block	Model Component	Variables
1	Input: Student background characteristics	Race, gender, generational status in the U.S., pre-college annual household income, pre-college academic aptitude, sibling post-secondary attainment, and frequency of pre-college engagement in cultural capital activities
2	Input: Quasi-pretest	Students' pre-college educational aspirations
3	Institutional characteristics	College type, total college cost
4	Environments: Intra-institutional student-student	Frequency of student-student social interactions, frequency of student-student academic interactions, and frequency of co-curricular involvement
5	Environments: Intra-institutional student-faculty	Student-faculty interactions, students' perceptions of the importance of faculty/advisor mentoring to their college careers
6	Environments: Extra-institutional parents/family	Frequency of student-parent interactions, students' perceptions of the importance of family support to their college careers
7	Environments: Intra/extra-institutional work and housing	Weekly hours of employment, living arrangements

In addition to the regression analyses, this study's research questions necessitated further analysis to address the tertiary query of interest: "Are there differences in intra- and/or extra-institutional involvements by students' race, gender, pre-college annual household income, generational status in the U.S., pre-college academic aptitude, pre-college educational aspirations, sibling post-secondary attainment, and frequency of students' pre-college engagement in cultural capital activities?" In order to determine these relationships, cross-tabulations were performed between each background characteristic and each involvement variable. Results will be presented in the following chapter and interpreted in combination with other analyses.

## **Methodology Limitations**

A number of limitations must be considered regarding the research methodology of this study. First, it is important to note that the 28 selective, elite institutions that participated in the NLSF do not represent the fullest spectrum of institutions at which first-generation college students matriculate and, thus, do not fully represent the first-generation student population. Second, the research design chosen for this study, the *ex-post facto design*, was reliant on existing data; therefore, study questions were bounded by existing variables and the manner in which they were originally configured and conceptualized by the NLSF team. To this end, the data collection methodologies and response choices available shaped the researcher's selection of the statistical tools with which to analyze the data. Additionally, the correlational design chosen cannot prove cause and effect with regard to factors and outcomes. Furthermore, the age of the data must be a consideration: The first wave of the NLSF instrument was deployed in 1999 with final data collection from students completed in the spring of 2003. The passage of time may certainly have changed how constructs are conceptualized and operationalized. Finally, threats to external and internal validity, discussed below, must be considered.

**Threats to external and internal validity.** Given the careful and consultative instrumentation protocols followed by the OPR, threats to internal validity for this study were modest. However, testing effects could have been an issue for internal validity, especially since the longitudinal nature of the NLSF might have induced participants to recall how they answered questions in previous waves and, thus, regardless of actual feelings, respond similarly in the current wave. Additionally, the CAPI format for the baseline might have prompted socially desirable answers from participants rather than

honest ones, given the presence of the interviewer. Also, given that several of the questions in the first wave of the NLSF survey (i.e., fall 1999) asked participants to recall events beginning at age six, the accuracy of the data provided could have been compromised. Finally, the NLSF is a longitudinal study, and, as such, participants were surveyed over time about the same topics. As participants matured, their views may have change and this change may have jeopardized internal validity.

In addition to slight threats to internal validity, threats to external validity, with regard to generalizability to a diverse population of first-generation students, are a concern for two significant reasons. First, the 28 institutions that participated in the NLSF were elite, selective colleges and universities that may not fully represent the college-going choices of first-generation college students. Second, the inclusion of three populations of students of color (i.e., African American/Black, Hispanic or Latino/a, and Asian students) in the study may have limited transferability of findings to students of color not represented in the NLSF, including Native American students as well as multi-racial and multi-ethnic students. Yet, despite this limitation, and the additional limitations discussed above, analysis of NLSF findings may hold practical promise.

### **Chapter Three Summary**

This chapter outlined the research methodologies employed in the study of the factors that may contribute to the undergraduate persistence and graduate educational aspirations of first-generation college students attending elite institutions. Multi-institutional data collected in several waves via the comprehensive NLSF guided the exploration and analytical methods were devised in the context of Astin's (1970, 1993) I-E-O framework. The study was further shaped by the contributions of Astin's (1984,

1993, 1996) theory of involvement, Bean and Metzner's (1985) Non-Traditional Undergraduate Student Attrition Model, and Bourdieu's (1977) concepts of cultural capital and habitus. Study findings emerged through the employment of varied statistical methods and, accordingly, the following chapter will present the results obtained through the use of the methodologies discussed.

## **Chapter Four: Results**

The purpose of this study was to examine the factors that contribute to the undergraduate persistence and graduate educational aspirations of first-generation college students attending elite institutions. As described in chapter three, the student sample for this study was culled from Princeton University's Office of Population Research's National Longitudinal Survey of Freshmen (NLSF). The NLSF surveyed individuals at 28 selective U.S. colleges and universities. Therefore, the demographic details of the sample conveyed in this chapter, as well as subsequent analyses, are representative of students at these elite institutions and not necessarily first-generation college students enrolled at a broader classification of colleges/universities. The researcher shares this reminder in an effort to ensure accurate interpretation of study factors.

In an effort to explore the contributing factors of interest for the specific first-generation college students in this study, several elements pertinent to each student were selected for investigation. These elements included student background characteristics as well as student involvements in college and non-college environments. The selection of these factors was grounded in the study's conceptual framework bolstered by Astin's (1970, 1993) I-E-O Model, Bean and Metzner's (1985) Non-Traditional Undergraduate Student Attrition Model, Astin's (1984, 1993, 1996) Student Involvement Theory, and Bourdieu's (1977) concepts of cultural capital and habitus.

In this chapter, the results of the data analysis techniques utilized for the exploration of this study's research questions will be presented. First, the characteristics of the sample as reflected by the study's input variables (i.e., students' gender, race, generational status in the U.S., pre-college annual household income, pre-college

academic aptitude, pre-college post-secondary educational aspirations, sibling post-secondary attainment, and frequency of pre-college engagement in cultural capital activities) will be discussed. Second, the analytical approaches attempted for each research question will be described and relevant findings, as well as ancillary analyses, will be presented in tandem with conclusions for associated hypotheses. Tables will be provided in an effort to highlight specific and/or particularly compelling results.

### **Characteristics of the First-Generation College Student Sample**

The study sample included 103 first-generation college students, 87 (84.5%) of whom completed their undergraduate education within six years of commencing it (i.e., by spring 2005) and 16 (15.5%) who did not complete by the sixth year. As noted in Table 4, of the 103 first-generation students in the full study sample, 47.6% (n = 49) enrolled at private research institutions, while 10.7% (n = 11) enrolled at liberal arts colleges, and 41.7% (n = 43) matriculated at public research institutions. Total college costs for the student sample also varied. Per Table 4, most students (62.1%, n = 64) were enrolled at colleges with total costs of \$20,000 - \$29,999, while 24.3% (n = 25) enrolled at institutions with total cost under \$20,000, and 13.6% (n = 14) of students chose colleges with total costs of \$30,000 or more. While the institutional characteristics available for study in the data set were limited, a full listing of the institutions represented in the NLSF as well as the relevant control and classification data extracted from the National Center for Education Statistics' (NCES) Integrated Postsecondary Education Data System (IPEDS) and the National Association of College and University Business Officers' (NACUBO) Total Market Value of Endowments Study (NACUBO, 1999). can be found in Appendix A.

Sample demographic descriptive statistics, as detailed in Table 5, indicate that female students were overrepresented, comprising over half of the sample (63.1%,  $n = 65$ ) while males numbered 38, equating to 36.9% of the sample. With regard to race, students of color represented 82.6% ( $n = 85$ ) of the first-generation college student sample. Full race distributions for the sample are noted in Table 5 and follow: 43.7% Hispanic or Latino/a ( $n = 45$ ), 24.3% Asians ( $n = 25$ ), 17.5% Caucasian/White ( $n = 18$ ), and 14.6% Black/African American ( $n = 15$ ). While the larger, complete NLSF population included a nearly equal number of each of the four race groups noted here, the first-generation student sample did not reflect this distribution.

In addition to gender and race, students' generational status in the U.S. was explored. Per Table 5, results indicate that the largest proportion of students (40.8%,  $n = 42$ ) were U.S.-born with at least one foreign-born parent while 35.9% ( $n = 37$ ) of students in the sample were U.S.-born with U.S.-born parents, and 23.3% ( $n = 24$ ) of students were foreign-born with at least one foreign-born parent. These findings underscored the point that, potentially, nearly two-thirds (64.1%,  $n = 66$ ) of the students in the first-generation sample were either immigrants or children of immigrant(s).

An exploration of the intersection between students' generational status in the U.S. and race, as shown in Table 6, uncovered that more Hispanic or Latino/a students (i.e., 66.7%,  $n = 30$ ) were born in the U.S. and reported at least one foreign-born parent than students in any other race group. Further analysis within race groups indicated that more Asian students (56.0%,  $n = 14$ ) were foreign-born with at least one foreign-born parent when compared to peers. While the NLSF data set did not include the country of birth for foreign-born students, ad-hoc analysis of parental country of birth indicated that,

for Asian students, South Korea and China represented the top two countries of birth for, at least, 40.0% of mothers and fathers. Similar analysis of parental country of birth for Hispanic or Latino/a students who reported foreign-born parents showed that over 40.0% of mothers and fathers came to the U.S. from Mexico.

While 11 of the 15 (73.3%) Black/African American students in the study and 15 of the 18 (83.3%) Caucasian/White students in the study reported being U.S.-born with U.S.-born parents, small proportions of these student groups were comprised of immigrants or children of immigrants. While student country of birth could not be determined given limitations in the data set, analysis of parental country of birth for Black/African American students indicated that students' mothers hailed from Jamaica (n = 2), Nigeria (n = 1), and Saint Vincent/Grenadines (n = 1). Country of birth analysis for students' fathers yielded identical results. Analysis of parental country of birth for Caucasian/White students who reported foreign-born parents showed that students' mothers were born in Hong Kong (n = 1), Portugal (n = 1), and Russia (n = 1). Further, these students' fathers hailed from China (n = 1), Portugal (n = 1), and Russia (n = 1).

In addition to generational status in the U.S., pre-college annual household income was also included in the exploration of sample characteristics. Per Table 5, the largest proportion of students (41.7%, n = 43) reported annual household incomes between \$25,000 and \$49,999 in their senior year of high school, with the next largest proportion (26.2%, n = 27) reporting incomes under \$25,000. The income distributions for the highest two quartiles follow: 19.4% (n = 20) \$50,000 - \$79,999, 12.6% (n = 13) \$75,000 or more. Given that first-generation student status and financial concerns often go hand-in-hand, annual income in the context of student race was also investigated. As



detailed in Table 7, within race groups, more Asian (44.0%, n = 11), Black/African American (53.3%, n = 8), Caucasian/White (44.4%, n = 8), and Hispanic or Latino/a (35.6%, n = 16) students fell into the “\$25,000 - \$49,999” income quartile than any other income range. With regard to the highest and lowest income quartiles, Hispanic or Latino/a students were overrepresented in the “Under \$25,000” quartile, comprising 55.6% (n = 15) of this income group. In the highest income quartile (i.e., \$75,000 or more), Black/African American students were most represented (26.7%, n = 4).

In addition to annual household income, the researcher sought to explore another pre-college student demographic characteristic: academic aptitude as expressed by students’ composite ACT scores. With regard to pre-college academic aptitude, results, as noted in Table 5, showed that the overwhelming majority of students (83.5%, n = 86) in the first-generation college student sample fell into the 75<sup>th</sup> - 99<sup>th</sup> ACT percentiles. Percentile data are based on all 1999 high school completers who took the ACT during their sophomore, junior or senior year, and ranks of 75<sup>th</sup> or above mean that students in these percentiles earned scores ranging from 24 to 36 (out of 36) (ACT, 1999). Table 8 provides a detailed snapshot of student performance on the ACT (scaled continuously) across the entirety of the first-generation college student sample. Of note, is that a score of 29 boasted the highest frequency (n = 13), earned by 12.6% of students.

With regard to pre-college educational aspirations, 59.2% (n = 61) students aspired to a master’s or other professional degree when asked at the start of their college careers. A smaller percentage of students, 29.1% (n = 30) aspired to complete a bachelor’s while 11.7% (n = 12) of students in the sample responded that they did not know what their current educational aspirations were. In a continued exploration of

student background variables, descriptive statistics were utilized to understand better the proportion of first-generation college students with older siblings who graduated from college. Of the 103 students in the sample, findings indicated that most (68.0%, n = 70) reported no sibling college graduates while 32.0% (n = 33) of first-generation students reported at least one older sibling with a college degree.

The final study input explored was “frequency of pre-college engagement in cultural capital activities.” As noted in Table 5, most students (52.4%, n = 54) responded that they engaged in these activities “rarely.” The next largest proportion (35.0%, n = 36) reported that they “never” engaged in pre-college cultural capital activities while 10.7% (n=11) reported that they engaged “sometimes” and 1.9% (n=2) “often” engaged. No students reported that they “always” engaged in cultural capital activities pre-college.

Given the link between engagement in cultural capital activities and income noted in the literature (e.g., Bourdieu, 1977), the intersection between this input variable and pre-college annual household income was explored. Findings, as noted in Table 9, indicated that students who reported pre-college annual household incomes under \$25,000, were overrepresented (i.e., 51.9%, n=14) in the “never” response to pre-college engagement in cultural capital activities. Interestingly, this trend of modest to no engagement held across all income ranges with 84.6% (n=11) of the wealthiest students, those reporting \$75,000 and more in household income, indicating only rare engagement. Interestingly, students reporting income between \$25,000 and \$49,999 were the only group with representation (i.e., 4.7%, n=2) in the “often” category.

Table 4

*Institutional Characteristics of the Colleges and Universities in Which First-Generation College Students Enrolled in Fall 1999*

Institutional Characteristics	Frequency (n)	Proportion (%)
College type		
Liberal arts college	11	10.7%
Private research university	49	47.6%
Public research university	43	41.7%
Total college cost		
Under \$20,000/year	25	24.3%
\$20,000 - \$29,999/year	64	62.1%
\$30,000 or more/year	14	13.6%

Table 5

*First-Generation College Students Sample Characteristics*

First-Generation Student Characteristics	Frequency (n)	Proportion (%)
Gender		
Female	38	36.9%
Male	65	63.1%
Race		
Asian	25	24.3%
Black/African American	15	14.6%
Caucasian/White	18	17.5%
Hispanic or Latino/a	45	43.7%
Generational status in U.S.		
Foreign-born with at least one foreign-born parent	24	23.3%
U.S.-born with at least one foreign-born parent	42	40.8%
U.S.-born with U.S.-born parents	37	35.9%
Foreign-born with U.S.-born parents	0	0.0%
Pre-college annual household income		
Under \$25,000	27	26.2%
\$25,000-49,999	43	41.7%
\$50,000-74,999	20	19.4%
\$75,000 or more	13	12.6%
Pre-college academic aptitude		
75-99 <sup>th</sup> Percentiles [ACT scores of 24-36]	86	83.5%
50-74 <sup>th</sup> Percentiles [ACT scores of 21-23]	11	10.7%
25-49 <sup>th</sup> Percentiles [ACT scores of 17-20]	5	4.9%
<25 <sup>th</sup> Percentiles [ACT scores < 17]	1	1.0%
Pre-college educational aspirations		

Don't know	12	11.7%
Finish bachelor's	30	29.1%
Finish graduate or other professional degree	61	59.2%
Sibling post-secondary attainment		
No siblings with college degree	70	68.0%
One or more sibling(s) with college degree	33	32.0%
Frequency of pre-college engagement in cultural capital activities		
Never	36	35.0%
Rarely	54	52.4%
Sometimes	11	10.7%
Often	2	1.9%
Always	0	0.0%

Table 6

*First-Generation College Students' Generational Status in the U.S. by Race*

Generational Status in the U.S.	Race				Total
	Asian	Black/ African American	Caucasian/ White	Hispanic or Latino/a	
Foreign-born (fb) with at least one fb parent	14	2	1	7	24
% within USGen_Stat	58.3%	8.3%	4.2%	29.2%	100.0%
% within Race	56.0%	13.3%	5.6%	15.6%	23.3%
% of Total	13.6%	1.9%	1.0%	6.8%	23.3%
U.S.-born with at least One fb parent	8	2	2	30	42
% within USGen_Stat	19.0%	4.8%	4.8%	71.4%	100.0%
% within Race	32.0%	13.3%	11.1%	66.7%	40.8%
% of Total	7.8%	1.9%	1.9%	29.1%	40.8%
U.S.-born with U.S.-born parents	3	11	15	8	37
% within USGen_Stat	8.1%	29.7%	40.5%	21.6%	100.0%
% within Race	12.0%	73.3%	83.3%	17.8%	35.9%
% of Total	2.9%	10.7%	14.6%	7.8%	35.9%
Total	25	15	18	45	103
% of Total	24.3%	14.6%	17.5%	43.7%	100.0%

Table 7

*First-Generation College Students' Pre-College Annual Household Income by Race*

Pre-College Annual Household Income	Race				Total
	Asian	Black/ African American	Caucasian/ White	Hispanic or Latino/a	
Under \$25,000	7	2	3	15	27
% within PC_Inc	25.9%	7.4%	11.1%	55.6%	100.0%
% within Race	28.0%	13.3%	16.7%	33.3%	26.2%
% of Total	6.8%	1.9%	2.9%	14.6%	26.2%
\$25,000-49,999	11	8	8	16	43
% within PC_Inc	25.6%	18.6%	18.6%	37.2%	100.0%
% within Race	44.0%	53.3%	44.4%	35.6%	41.7%
% of Total	10.7%	7.8%	7.8%	15.5%	41.7%
\$50,000-74,999	4	1	3	12	20
% within PC_Inc	20.0%	5.0%	15.0%	60.0%	100.0%
% within Race	16.0%	6.7%	16.7%	26.7%	19.4%
% of Total	3.9%	1.0%	2.9%	11.7%	19.4%
\$75,000 or More	3	4	4	2	13
% within PC_Inc	23.1%	30.8%	30.8%	15.4%	100.0%
% within Race	12.0%	26.7%	22.2%	4.4%	12.6%
% of Total	2.9%	3.9%	3.9%	1.9%	12.6%
Total	25	15	18	45	103
% of Total	24.3%	14.6%	17.5%	43.7%	100.0%

Table 8

*First-Generation College Students' ACT Composite Scores - 1999*

ACT Score	Frequency (n)	Proportion (%)	ACT Score	Frequency (n)	Proportion (%)
16/36	1	1.0%	26/36	7	6.8%
17/36	1	1.0%	27/36	9	8.7%
18/36	1	1.0%	28/36	11	10.7%
19/36	2	1.9%	29/36	13	12.6%
20/36	1	1.0%	30/36	5	4.9%
21/36	4	3.9%	31/36	9	8.7%
22/36	3	2.9%	32/36	5	4.9%
23/36	4	3.9%	33/36	5	4.9%
24/36	11	10.7%	34/36	5	4.9%
25/36	6	5.8%			

Table 9

*Frequency of First-Generation College Students' Pre-College Engagement in Cultural Capital Activities by Pre-College Annual Household Income*

Frequency of Pre-College Engagement in Cultural Capital Activities	Pre-College Annual Household Income				Total
	Under \$25,000	\$25,000-49,999	\$50,000-74,999	\$75,000 or more	
Never	14	15	6	1	36
% within PC_CulCap	38.9%	41.7%	16.7%	2.8%	100.0%
% within PC_Inc	51.9%	34.9%	30.0%	7.7%	35.0%
% of Total	13.6%	14.6%	5.8%	1.0%	35.0%
Rarely	11	22	10	11	54
% within PC_CulCap	20.4%	40.7%	18.5%	20.4%	100.0%
% within PC_Inc	40.7%	51.2%	50.0%	84.6%	52.4%
% of Total	10.7%	21.4%	9.7%	10.7%	52.4%
Sometimes	2	4	4	1	11
% within PC_CulCap	18.2%	36.4%	36.4%	9.1%	100.0%
% within PC_Inc	7.4%	9.3%	20.0%	7.7%	10.7%
% of Total	1.9%	3.9%	3.9%	1.0%	10.7%
Often	0	2	0	0	2
% within PC_CulCap	0.0%	100.0%	0.0%	0.0%	100.0%
% within PC_Inc	0.0%	4.7%	0.0%	0.0%	1.9%
% of Total	0.0%	1.9%	0.0%	0.0%	1.9%
Total	27	43	20	13	103
% of Total	26.2%	41.7%	19.4%	12.6%	100.0%

*Note.* There were no cases in the “always” PC\_CulCap category.

**Differences in sample characteristics between first-generation and non-first generation college students.** In order to understand more fully the unique demographic (i.e., input) attributes of the study’s first-generation college student sample (n=103), the researcher utilized the Chi-square ( $\chi^2$ ) test of independence to determine if there were any differences between the categorical characteristics for the study’s first-generation student sample and the non-first-generation students who participated in the NLSF. In order to ensure analytical accuracy, the researcher “cleaned” the appropriate variables for all non-

first-generation cases in alignment with established protocols for the first-generation sample, thus yielding a non-first-generation student sample (n) of 958.

Given the exploratory nature of this study, the researcher increased the significance threshold to  $p < .10$ , noting findings between .05 and .10 as “marginally significant.” Based on these testing parameters, Table 10, shown below, indicates that there were significant differences between first- and non-first-generation students with regard to a) race, b) generational status in the U.S., c) pre-college annual household income, d) pre-college academic aptitude, e) sibling post-secondary attainment, and f) frequency of students’ pre-college engagement in cultural capital activities.

Table 10

*Differences in Sample Characteristics between National Longitudinal Study of Freshmen First-Generation and Non-First-Generation College Students*

Sample Characteristics	$\chi^2$	df	Sig. ( $p < .10$ )	N
Race	28.334	3	.000*	1061
Gender <sup>a</sup>	2.583	1	.108	1061
Generational status in the U.S.	15.322	3	.002*	1061
Pre-college annual household income	95.977	3	.000*	1061
Pre-college academic aptitude	13.972	3	.003*	1061
Pre-college educational aspirations	4.585	2	.101	1061
Sibling post-secondary attainment <sup>a</sup>	7.467	1	.006*	1061
Frequency of pre-college engagement in cultural capital activities	69.554	4	.000*	1061

<sup>a</sup>Yates Continuity Correction value and associated significance used instead of Pearson Chi-square given the two-by-two nature of cross-tabulations (Pallant, 2007).

**Race.** Per Table 10, there was a difference between first- and non-first-generation college students with regard to race [ $\chi^2$  (df = 3, n = 1061) = 28.334 with  $p = .000$ ]. Given this significant association the researcher examined the Cramer’s V produced by the analysis to assess the strength of the relationship. Per Pallant’s (2007) guidance, Cramer’s

V was examined in lieu of the standard “Phi coefficient” given the statistic’s more accurate report of cross-tabulation tables larger than two-by-two. Cramer’s V equaled .166, thus, indicating a small to medium effect and, as a result, a modestly strong relationship between first-generation college student status and race.

Further examination of the cross-tabulation table comparing first-generation status and race showed that, compared to Asian, Black/African American, and Hispanic or Latino/a peers, Caucasian/White students comprised more of the non-first-generation group (i.e., 29.2%, n=280). Compared to peers, Hispanic or Latino/a students represented the largest proportion of the first-generation sample (i.e., 43.7%, n=45).

***Generational status in the U.S.*** As noted earlier, there was a difference between first- and non-first-generation college students with regard to generational status in the U.S. [ $\chi^2$  (df = 3, n = 1061) = 15.322 with p = .002]. Based on this finding, the researcher examined Cramer’s V to gauge the strength of the association and found that the effect size was .120—denoting a small to medium effect and, thus, a modestly strong relationship between the variables.

Additional scrutiny of the cross-tabulation produced by the Chi-square analysis of first-generation status and generational status in the U.S., revealed that most (53.1%. n = 509) non-first-generation students were U.S.-born with U.S. born parents. With regard to first-generation students, the largest proportion (40.8%, n = 42) were U.S. born with at least one foreign-born parent. Interestingly, only 13.0% (n = 125) of non-first-generation students were foreign-born with at least one foreign-born parent while 23.3% (n=24) of first-generation students fell into this category.



***Pre-college annual household income.*** As detailed in Table 10, there was a difference between first- and non-first-generation college students in the context of pre-college annual household income [ $\chi^2$  (df = 3, n = 1061) = 95.977 with p = .000]. Given this significant association the researcher examined the Cramer's V and found it to equal .301, thus, indicating a medium effect and moderately strong relationship between first-generation status and students' pre-college annual household income.

Further examination of the cross-tabulation table comparing first-generation status and pre-college annual household income indicated that most (56.4%, n = 540) non-first-generation students reported incomes of \$75,000 or more while most (41.7%, n = 43) first-generation students reported incomes of \$25,000-49,999. Interestingly, while the smallest proportion (8.5%, n=81) of non-first-generation students reported pre-college annual household incomes of less than \$25,000, the second largest proportion (i.e., 26.2%, n=27) of first-generation students did so.

***Pre-college academic aptitude.*** As noted previously, there was a difference between first- and non-first-generation college students in terms of pre-college academic aptitude [ $\chi^2$  (df = 3, n = 1061) = 13.972 with p = .003]. Based on this significant finding, the researcher examined Cramer's V and found that the effect size was .115—denoting a small to medium effect and modestly strong relationship between the variables.

Additional investigation of the cross-tabulation produced by the Chi-square analysis between first-generation status and students' pre-college academic aptitude, indicated that the majority of both non-first-generation students (93.4%, n = 895) and first-generation students (83.5%, n=86) ranked in the 75-99<sup>th</sup> academic aptitude percentiles. Interestingly, the proportion of first-generation students in the three lower

aptitude percentiles was greater than that of non-first peers. For example, 10.7% (n=45) of first-generation students fell into the 50-74<sup>th</sup> percentile as compared to (4.7%, n =45) of non-first-generation college students.

***Sibling post-secondary attainment.*** Per Table 10, there was a difference between first- and non-first-generation students with regard sibling post-secondary attainment [ $\chi^2$  (df = 1, n = 1061) = 7.467 with p = .006]. Given this significant association and the two-by-two nature of the resulting cross-tabulation, the researcher examined the Phi coefficient produced by the analysis to assess the strength of the relationship. The Phi coefficient was found to be equal to .088. Thus, based on Cohen's (1988) (cited in Pallant, 2007) criteria for effect sizes, the effect was confirmed to be small and, as a result, indicative of a weak relationship between the variables.

Further scrutiny of the cross-tabulation table comparing first-generation status and sibling post-secondary attainment indicated that, within the non-first generation student group, 80.1% (n=767) of students reported no sibling college graduates. However, while most first-generation students also reported no sibling college graduates, the proportion of first-generation students who reported one or more siblings with a college degree was greater (32.0%, n = 33) than that of the non-first group.

***Frequency of pre-college engagement in cultural capital activities.*** As detailed above, there was a significant difference between first- and non-first-generation college students in the context of students' frequency of pre-college engagement in cultural capital activities [ $\chi^2$  (df = 4, n = 1061) = 69.554 with p = .000]. Based on this significant finding, the researcher examined Cramer's V and found that the effect size was

.256—denoting a medium effect and moderately strong relationship between first-generation status and frequency of pre-college engagement in cultural capital activities.

Additional examination of the cross-tabulation produced by the Chi-square analysis between the variables revealed that while most non-first- and first-generation students fell into the “rare” engagement category (53.0%, n=508; 52.4%, n=54, respectively), non-first engagement was skewed toward higher frequencies overall. Specifically, 35.0% (n=36) of first-generation students “never” engaged in pre-college cultural capital activities while only 9.2% (n=88) of non-first-generation students reported as such. Further, 31.7% (n=304) of non-first-generation students “sometimes” engaged while only 10.7% (n=11) of first-generation students actually reported that they did so. In the “often” category, 5.4% (n=54) of non-first-generation students were represented as compared with 1.9% (n=2) of first-generation students.

### **Research Question Analyses and Hypotheses Conclusions**

As noted in chapters one and three, and depicted in Figure 1, this study’s primary research question sought to determine the factors that contribute to the undergraduate persistence and graduate educational aspirations of first-generation college students attending elite institutions. In alignment with the college impact variables suggested by Astin’s (1970, 1993) I-E-O framework and the potential measures of persistence noted in Bean and Metzner’s (1985) Non-Traditional Undergraduate Student Attrition Model, these factors were parsed into four research sub-questions. These sub-questions were designed to explore the contribution of a) student background characteristics (i.e., inputs), b) environmental aspects such as campus-based (intra-institutional) involvements, c) off-campus-based (extra-institutional) involvements, and d) on- and off-campus intra/extra-

institutional involvements. The analytical methods attempted for each research question follow as well as the actual analytical operations used and the associated findings.

**Research sub-question one: Student backgrounds.** The first research sub-question was concerned with the contribution of student background characteristics to undergraduate persistence and students' graduate educational aspirations. The original research question follows: Do student background characteristics such as race, gender, generational status in the U.S., pre-college annual household income, pre-college academic aptitude, pre-college educational aspirations, sibling post-secondary attainment, and frequency of students' pre-college engagement in cultural capital activities contribute to undergraduate persistence and graduate educational aspirations?

As expressed in chapter three, the original data analysis plan devised for this question included two separate regression models: a) a binary logistic regression testing the relationship between student inputs and the dichotomous undergraduate persistence variable, and b) a multinomial logistic regression examining the relationship between student inputs and the polytomous graduate educational aspirations variable. However, once the researcher assessed the NLSF data set and began to execute the appropriate statistical operations utilizing SPSS, it was discovered that both types of regressions would fail to converge. Convergence was problematic because of the modestly-sized study sample, the relative complexity of the research model design, and data limitations.

With regard to first-generation student sample size, once the data set was cleaned and purged of the substantial missing values for the salient study variables, the anticipated "n" of nearly 350 students was reduced to 103 students. This modest sample size presented convergence issues for both the binary and multinomial regressions. With

regard to the binary regression, the researcher encountered issues of quasi-complete separation. The challenge of quasi-complete separation is best understood in the context of logistic regression's maximum likelihood underpinnings. Specifically, the purpose of logistic regression is to predict the log odds or "likelihood" of a categorical outcome based on a number of independent variables (Burns & Burns, 2008; Garson, 2011). As such, logistic regression uses the maximum likelihood method to form the equation that "best fits" or maximizes the odds that the dependent variable may be predicted from the independent variables. However, in instances of separation (quasi or complete), one or more of the independent variables perfectly predicts one or more outcomes and, thus, finite maximum likelihood estimates do not exist (i.e., parameter estimates are infinite) (Allison, 2008; Hancock & Mueller, 2010). While perfect predictions can be attractive, they do not allow for a true understanding of the effects of independent variables.

According to Allison (2008), Hancock and Mueller (2010), and Hosmer and Lemeshow (2000), the occurrence of separation often hinges on a) sample size, b) the number of variables in the logistic regression model, and c) imbalances in the frequency distribution of either the independent or dependent variables. These three factors are significantly interrelated, and the study's sample was vulnerable to all of them.

First, the diminished sample size could not support the independent variables in the study. While the original research design included approximately 20 predictors, this number was nearly doubled given that many of these independent variables were categorical in nature and, thus, necessitated the creation of dummy covariates for the binary model. The dominance of categorical predictors was both a product of the NLSF team's item construction protocol and the researcher's attempt to transform several non-

parametric continuous variables into simpler representations of the data. Nonetheless, the inflated number of variables in the model violated sensible guidance for variable-to-event ratios such as that posed by Peduzzi, Concato, Kemper, Holdford, and Feinstein (1996). In their study of the ideal number of events per variable (EPV) in the execution of valid logistic regressions, Peduzzi et al. found that an EPV value of 10 or greater was best for avoiding statistical issues. In the first-generation sample, the number of events of interest was 87 (students who graduated) and, as a result, the EPV equaled 2.81 (i.e., 87/31 predictors)—a figure far below Peduzzi et al.’s recommendation for viable designs.

While, as a whole, the study sample size proved challenging to the initial data analysis plan, the study sample partitioned by the binary graduation outcome responses presented additional difficulties. Specifically, of the 103 first-generation students in the study sample, an overwhelming majority of students (84.5%,  $n = 87$ ) reported a “yes” or “1” outcome for graduation while 15.5% ( $n = 16$ ) reported a “no” or “0” outcome for graduation. This extreme split/imbalance in the outcome or dependent variable prompted estimation issues by contributing to near perfect predictions. Given that so many students in the sample graduated, there was little variability in outcome responses and, thus, the model was vulnerable to instability. Proof of perfect/near perfect predictions given the imbalance was represented by the appearance of zeros in the two-by-two classification tables produced by the binary logistic regression. Per Altman, Gill, and McDonald (2004), “...for any dichotomous explanatory variable in a logistic regression, if there is a zero in the 2x2 table formed by that variable and the outcome variable, the ML estimate for the regression coefficient will not exist” (p. 265). This estimation challenge might have been mitigated by a larger sample size with more variability in the outcome.

With regard to the multinomial logistic regression, the study sample size and the number of independent categorical variables played a significant role in the model's failure to converge. The researcher's attempts to execute the model were met with a number of SPSS-generated warnings citing the large number of cells with zero frequencies (over 50.0%) and singularities in the Hessian matrix. As a result of these errors, SPSS halted model iterations prematurely. The zero cell counts were attributable to a number of factors including a) the small sample size that translated to inadequate numbers of cases in the NLSF item's response categories and b) NLSF items with large numbers of response categories. With regard to the Hessian matrix, a product of the Newton-Raphson algorithm driving the iteration of the regression equations (Allison, 2008), singularities emerged. Complications with the Hessian matrix such as singularities denoted missing data in a substantial portion of the data set and were attributable to inadequate distribution of cases across response categories. As confirmed by Gill and King (2004), sample size and complex modeling are often culpable.

In an effort to remedy the convergence issues discussed above for both the binary and multinomial regressions, the researcher attempted a number of solutions offered by Allison (2008). These potential remedies, or attempts at "respecification and reanalysis" (Gill & King, 2004, p. 144) included a) simplifying the research questions in an attempt to reduce the number of categorical variables in the study with large numbers of missing values and, thus, grow sample size, b) reducing the number of categories (i.e., response choices) within predictor and dependent categorical variables by consolidating and combining response choices, c) consolidating continuous variables with inadequate distribution of cases in response options to combat singularity issues, d) substituting

continuous predictor variables for categorical predictors if the options presented themselves in the data set, and e) engaging a forward, step-by-step approach to regression model building to identify and combat problematic analytics. While some variations of both the binary and multinomial models “ran” with these re-specifications and changes in analysis, SPSS terminated the model iterations prematurely, and, thus, the researcher made the assessment that resulting statistics could not be trusted for interpretation. In short, none of these approaches described above remedied the quasi-complete separation issue or stabilized either regression model for use.

Given the failed analytical attempts made to address research sub-question one using the originally described data analysis methods, the researcher opted to address the relationships between the study’s input, environment, and outcome variables via bi-variate, non-parametric analysis. The researcher selected the Chi-square ( $\chi^2$ ) test of independence and employed the less stringent  $p$  value of  $p < .10$ . The exploratory nature of this study permitted the use of the more forgiving significance threshold and allowed the researcher to categorize findings of  $p > .05$  and  $p < .10$  as “marginally significant.” However, regardless of significance thresholds, unlike logistic regression, the Chi-square test could not infer predictions or likelihoods, but it could showcase significant relationships between categorical variables. As such, continuous independent variables were transformed into categorical predictors so that they could best be related to the outcomes of undergraduate persistence and graduate educational aspirations. These transformations are described in Table 11 and supplement the variable details noted in Table 2 (Description of Study Independent Variables).



Table 11

*Summary of Study's Independent Variable Transformations from Continuous Variables to Categorical Variables*

Study Variables	Continuous Response	Categorical Response After Transformation
Pre-college academic aptitude	Quantitative ACT scores ranging from 0 to 36	1) 75-99 <sup>th</sup> Percentiles [ACT scores of 24-36] 2) 50-74 <sup>th</sup> Percentiles [ACT scores of 21-23] 3) 25-49 <sup>th</sup> Percentiles [ACT scores of 17-20] 4) <25 <sup>th</sup> Percentiles [ACT scores < 17]
Sibling post-secondary attainment	Quantitative response ranging from 0 to 20 siblings	0) No siblings with college degree 1) One or more sibling(s) with college degree
Frequency of student-student social interaction	Quantitative response ranging from 0 to 120 hours of interaction	0) Zero hours 1) 1-9 hours 2) 10-19 hours 3) 20-29 hours 4) 30 or more hours
Frequency of co-curricular involvement	Quantitative response ranging from 0 to 120 hours of involvement	0) Zero hours 1) 1-9 hours 2) 10-19 hours 3) 20-29 hours 4) 30 or more hours
Frequency of student-parent interaction	Quantitative response ranging from 0 to 100 visits to parents	0) Zero visits 1) 1-9 visits 2) 10-19 visits 3) 20-29 visits 4) 30 or more visits

Based on the new variable structure and the necessary alternative statistical approach to research sub-question one, the revised research question follows:

- Is there a relationship between student background characteristics (i.e., race, gender, generational status in the U.S., pre-college annual household income, pre-college academic aptitude, pre-college educational aspirations, sibling post-secondary attainment, and frequency of pre-college engagement in cultural capital

activities) and the outcome variables of undergraduate persistence and graduate educational aspirations?

The association between each student background characteristic and each outcome variable was analyzed via the Chi-square test of independence, and appropriate  $\chi^2$  statistics and significance figures are reported in the following section. Pertinent, descriptive tables are included where appropriate.

***Students' background characteristics and undergraduate persistence.*** Analysis of potential relationships between first-generation students' background characteristics and the undergraduate persistence outcome yielded one significant association. As noted in Table 12, there was a marginally significant relationship between students' pre-college educational aspirations and their undergraduate persistence.

Table 12

*Relationship between First-Generation College Students' Background Characteristics and Students' Undergraduate Persistence*

Background Characteristics	$\chi^2$	df	Sig. (p < .10)	N
Race	2.516	3	.472	103
Gender <sup>a</sup>	0.052	1	.820	103
Generational status in the U.S.	3.082	2	.214	103
Pre-college annual household income	0.725	3	.867	103
Pre-college academic aptitude	5.873	3	.118	103
Pre-college educational aspirations	4.730	2	.094*	103
Sibling post-secondary attainment	0.047	1	.828	103
Frequency of pre-college engagement in cultural capital activities	3.062	3	.382	103

<sup>a</sup>Yates Continuity Correction value and associated significance used instead of Pearson Chi-square given the two-by-two nature of cross-tabulations (Pallant, 2007).

***Pre-college educational aspirations and undergraduate persistence.*** As noted above in Table 12, a marginally significant relationship was found via the Chi-square test

for independence between first-generation college students' pre-college educational aspirations and their undergraduate persistence [ $\chi^2$  (df = 2, n = 103) = 4.730 with  $p = .094$ ]. Given this marginally significant outcome, the associated correlation coefficient (i.e., Cramer's V) was explored in order to gauge the strength of the relationship. Cramer's V indicated that the effect size was .214 thus, denoting a small to medium effect and a modestly strong relationship between the variables.

In addition to providing proof of a marginally significant, modestly strong relationship between students' pre-college educational aspirations and undergraduate persistence, the Chi-square test also highlighted additional dynamics of the relationship. As detailed in Table 13, of the 30 first-generation college students who aspired to finish a bachelor's degree, 93.3% (n = 28) actually did so. Additionally, of the 61 students who aspired to finish a graduate or other professional degree, 51 (83.6%) completed college within six years of commencing it. Interestingly, 66.7% (n=8) of the 12 students who "did not know" when asked about their aspirations earned undergraduate degrees.

Though interesting, however, the results above must be considered with caution given that this analysis violated one of the assumptions upon which the validity of the Chi-square test of independence is based: minimum expected cell frequencies.

According to Pallant (2007), a) each of the cells in the cross-tabulation matrix should have no fewer than five observations, or b) no more than 20.0% of cells in the matrix should have expected frequencies of less than five. In this analysis of aspirations and undergraduate persistence, 33.3% of cells had an expected count of less than five.

This cell frequency issue will resurface throughout this chapter as results of analyses are reported. As such, in the interest of full disclosure and informed

interpretation, cross-tabulations that do not meet Pallant's (2007) guidelines will be accompanied by a note detailing any expected cell count challenges.

Table 13

*Relationship between First-Generation College Students' Pre-College Educational Aspirations and Students' Undergraduate Persistence*

Undergraduate Persistence	Pre-College Educational Aspirations			Total
	Don't know	Finish bachelor's	Finish graduate or other professional degree	
Not graduated from college	4	2	10	16
% within UG_Persist	25.0%	12.5%	62.5%	100.0%
% within PC_EdAsp	33.3%	6.7%	16.4%	15.5%
% of Total	3.9%	1.9%	9.7%	15.5%
Graduated from college	8	28	51	87
% within UG_Persist	9.2%	32.2%	58.6%	100.0%
% within PC_EdAsp	66.7%	93.3%	83.6%	84.5%
% of Total	7.8%	27.2%	49.5%	84.5%
Total	12	30	61	103
% of Total	11.7%	29.1%	59.2%	100.0%

*Note.* For this analysis, 33.3% of cells had an expected count of less than five.

***Students' background characteristics and graduate educational aspirations.***

The analysis of potential relationships between first-generation students' background characteristics of race, gender, generational status in the U.S., pre-college annual household income, pre-college academic aptitude, pre-college educational aspirations, sibling post-secondary attainment, and frequency of pre-college engagement in cultural capital activities and the outcome variable of graduation educational aspirations yielded no significant associations. The specific findings associated with the Chi-square test of independence conducted for this analysis are outlined in Table 14.

Table 14

*Relationship between First-Generation College Students' Background Characteristics and Students' Graduate Educational Aspirations*

Background Characteristics	$\chi^2$	df	Sig. (p < .10)	N
Race	4.300	6	.636	103
Gender	2.295	2	.317	103
Generational status in the U.S.	2.101	4	.717	103
Pre-college annual household income	4.820	6	.567	103
Pre-college academic aptitude	5.854	6	.440	103
Pre-college educational aspirations	6.606	4	.158	103
Sibling post-secondary attainment	1.630	2	.443	103
Frequency of pre-college engagement in cultural capital activities	5.974	6	.426	103

Given the findings for the analysis of relationships between students' background characteristics and the outcome variables of undergraduate persistence and graduate educational aspirations, appropriate hypotheses conclusions as well as hypotheses rejection decisions are presented in the following section.

***Hypotheses conclusions.*** The hypotheses proposed for research sub-question one, based on the original conceptualization of data analysis methods, follow:

- Hypothesis One: There will be a relationship between students' a) race, b) gender, and c) generational status in the U.S. and the study outcomes of undergraduate persistence and graduate educational aspirations.
- Hypothesis Two: There will be a strong, positive relationship between students' a) pre-college annual household income, b) students' pre-college educational aspirations, c) pre-college academic aptitude, and d) frequency of pre-college engagement in cultural capital activities and the study outcomes of undergraduate persistence and graduate educational aspirations.

- Hypothesis Three: There will be a positive relationship between students' sibling post-secondary attainment and the study outcomes of undergraduate persistence and graduate educational aspirations.

While data set limitations necessitated that the researcher reframe the data analysis process, the Chi-square test of independence still allowed for an examination of relationships. Yet, in order to reflect correctly, accurately, and more plainly the new analytical approach, the relationship hypotheses were revised into their null counterparts. For simplicity, these hypotheses were consolidated into the general hypothesis below:

- Ho: There will be no significant relationship between students' a) race, b) gender, c) generational status in the U.S., d) pre-college annual household income, e) pre-college academic aptitude, f) pre-college educational aspirations, g) siblings' post-secondary attainment, and h) frequency of pre-college engagement in cultural capital activities and the study outcomes of a) undergraduate persistence and b) graduate educational aspirations.

Based on the significance ( $p$ ) levels that corresponded to the Chi-square ( $\chi^2$ ) statistic for the relationships between the student background variables and the study outcomes, the researcher failed to reject part of the consolidated null hypothesis. To ensure a clear understanding of the parts of the hypothesis that were rejected, the researcher segmented the null hypothesis by outcome variable and articulated hypothesis rejection decisions by independent variables of interest. Details are shown in Table 15.

Table 15

*Hypotheses Rejection Decisions for Research Sub-Question One*

Null Hypotheses (Ho)	Rejection Decision
Student Background Characteristics and Undergraduate Persistence	
There will be no significant relationship between students' pre-college educational aspirations and the study outcome of undergraduate persistence.	Reject
There will be no significant relationship between students' a) race, b) gender, c) generational status in the U.S., d) pre-college annual household income, e) pre-college academic aptitude, f) sibling postsecondary attainment, and g) frequency of pre-college engagement in cultural capital activities and the study outcome of undergraduate persistence.	Fail to Reject
Student Background Characteristics and Graduate Educational Aspirations	
There will be no significant relationship between students' a) race, b) gender, c) generational status in the U.S., d) pre-college annual household income, e) pre-college academic aptitude, f) pre-college educational aspirations, g) sibling postsecondary attainment, and h) frequency of pre-college engagement in cultural capital activities and the study outcome of graduate educational aspirations.	Fail to Reject

**Summary.** In summary, in the investigation of relationships between student background characteristics and study outcomes, one significant relationship was found between the student input variable of pre-college educational aspirations and the study outcome variable of undergraduate persistence. This finding, as well as the additional findings that may emerge for the remaining study research questions, will be interpreted and discussed further in chapter five.

**Research sub-question two: Intra-institutional involvements.** The second sub-question sought to examine the contributions of first-generation college students' intra-institutional involvements with regard to peer interactions (academic and social), co-curricular activities, and faculty interactions to their undergraduate persistence and

graduate educational aspirations. As a secondary aim, this question sought to uncover differences in intra-institutional involvements by students' background characteristics.

The original data analysis plan for exploring the relationship question involved the use of binary and multinomial logistic regressions. However, as noted previously, sample and data limitations would not permit the use of regression models. As such, the relationship question was explored via the Chi-square ( $\chi^2$ ) test of independence using  $p < .10$ . Based on this revised statistical approach to research sub-question two, the new primary research question follows:

- Is there a relationship between students' intra-institutional involvements (i.e., frequency of student-student academic interaction, frequency of student-student social interaction, frequency of co-curricular involvement, frequency of faculty interaction, and students' perceptions of the importance of faculty mentoring) and the study outcomes of undergraduate persistence and graduate educational aspirations?

The secondary "differences" question was not altered and follows:

- Is there a difference in intra-institutional involvements by student race, gender, generational status in the U.S., pre-college annual household income, pre-college academic aptitude, pre-college educational aspirations, sibling post-secondary attainment, and frequency of pre-college engagement in cultural capital activities?

Given the research questions above, the association between each intra-institutional involvement variable and each outcome was analyzed via the Chi-square test of independence. Additionally, given their inclusion as "controls" in the original study design and their importance in characterizing the college environment, the relationship



between institutional characteristics (i.e., college type, total college cost) and the outcome variables was also explored via Chi-square. Results of both analyses are reported in the following section, and descriptive tables are provided where appropriate.

***Students' intra-institutional involvements and undergraduate persistence.*** The analysis of potential relationships between first-generation students' intra-institutional involvements and the outcome variable of undergraduate persistence yielded three significant or marginally significant relationships. As noted in Table 16, there was a significant relationship between persistence and a) the frequency of students' academic interaction with other students, b) the frequency of students' interaction with faculty, and c) students' perceptions of the importance of faculty (and advisor) mentoring.

Table 16

*Relationship between First-Generation College Students' Intra-Institutional Involvements and Students' Undergraduate Persistence*

Intra-Institutional Involvements	$\chi^2$	df	Sig. ( $p < .10$ )	N
Frequency of student-student academic interaction	8.912	4	.063*	103
Frequency of student-student social interaction	4.263	4	.372	103
Frequency of co-curricular involvement	4.390	4	.356	103
Frequency of student-faculty interaction	10.409	4	.034*	103
Students' perceptions of the importance of faculty/advisor mentoring	12.216	4	.016*	103
College type	2.074	2	.355	103
Total college cost	0.388	2	.824	103

*Frequency of student-student academic interaction and undergraduate persistence.* As noted in Table 16, the results of the analysis exploring the relationship between the frequency of student-student academic interaction and undergraduate persistence indicated a marginally significant association between the two variables [ $\chi^2$

(df = 4, n = 103) = 8.912 with  $p = .063$ ]. Based on this significant outcome, the correlation coefficients were explored in order to gauge the strength of the relationship. Assessing Cramer's V, the effect size was .294 denoting a medium effect and a moderately strong relationship between the variables.

In addition to providing proof of a marginally significant, moderately strong relationship between the frequency of student-student academic interaction and undergraduate persistence, the Chi-square test also provided additional context for this relationship. For example, as indicated in Table 17, out of the 87 students who graduated from college, the largest proportion (49.4%, n = 43) only reported a modest "1" in student-student academic interaction. While "1" cannot be well-interpreted because of the lack of qualifiers in the NLSF instrument, the number's proximity to "never" suggests that the students surveyed interacted with each other rarely on the weekly basis. Interestingly, an exploration of graduation rates within frequency categories showed that nearly two-thirds (i.e., 66.7%, n = 6) of students on the lowest (i.e., "never") end of the interaction scale graduated college in six years while 100.0% (n=12) of the students on the higher end of the scale (i.e., "3" and "always") graduated college in six years.

Table 17

*Relationship between Frequency of First-Generation College Students' Academic Interaction with Peers and Students' Undergraduate Persistence*

Undergraduate Persistence	Frequency of Student-Student Academic Interaction					Total
	Never	1	2	3	Always	
Not graduated from college	3	4	9	0	0	16
% within UG_Persist	18.8%	25.0%	56.3%	0.0%	0.0%	100.0%
% within SS_AcInt	33.3%	8.5%	25.7%	0.0%	0.0%	15.5%
% of Total	2.9%	3.9%	8.7%	0.0%	0.0%	15.5%

Graduated from college	6	43	26	11	1	87
% within UG_Persist	6.9%	49.4%	29.9%	12.6%	1.1%	100.0%
% within SS_AcInt	66.7%	91.5%	74.3%	100.0%	100.0%	84.5%
% of Total	5.8%	41.7%	25.2%	10.7%	1.0%	84.5%
Total	9	47	35	11	1	103
% of Total	8.7%	45.6%	34.0%	10.7%	1.0%	100.0%

Note. 40.0% of cells have an expected count of less than five.

*Frequency of student-faculty interaction and undergraduate persistence.* Per

Table 16, the results of the analysis exploring the relationship between the frequency of students' interaction with faculty and students' undergraduate persistence indicated a significant association between the two variables [ $\chi^2$  (df = 4, n = 103) = 10.409 with  $p = .034$ ]. Given this significant outcome, the correlation coefficients were explored via Cramer's V, and the effect size was .318 denoting a medium effect and a moderately strong relationship between the variables.

In addition to confirming a significant, moderately strong relationship between the frequency of student-faculty interaction and undergraduate persistence, the Chi-square test also highlighted additional dynamics of the association. As noted in Table 18, most students in the first-generation student sample (i.e., 52.4%, n = 53) noted a "1" in student-faculty interaction frequency. While this frequency cannot be tightly interpreted given lack of qualifiers in the NLSF instrument, its proximity to the lowest end of the interaction scale implies that most students interacted with faculty rarely on the weekly basis. However, most (88.9%, n=48) of these students did complete their undergraduate degrees. Interestingly, of the 14 students who responded that they "never" engaged in student-faculty interactions, 71.4% (n = 10) also graduated from college in six years. Yet, is it important to point out that, while the "always" frequency category only included

one student, the second highest interaction category (i.e., “3”) was comprised of 10 students—all who earned their undergraduate degrees.

Table 18

*Relationship between Frequency of First-Generation College Students’ Interaction with Faculty and Students’ Undergraduate Persistence*

Undergraduate Persistence	Frequency of Student-Faculty Interaction					Total
	Never	1	2	3	Always	
Not graduated from college	4	6	5	0	1	16
% within UG_Persist	25.0%	37.5%	31.3%	0.0%	6.3%	100.0%
% within SF_Int	28.6%	11.1%	20.8%	0.0%	100.0%	15.5%
% of Total	3.9%	5.8%	4.9%	0.0%	1.0%	15.5%
Graduated from college	10	48	19	10	0	87
% within UG_Persist	11.5%	55.2%	21.8%	11.5%	0.0%	100.0%
% within SF_Int	71.4%	88.9%	79.2%	100.0%	0.0%	84.5%
% of Total	9.7%	46.6%	18.4%	9.7%	0.0%	84.5%
Total	14	54	24	10	1	103
% of Total	13.6%	52.4%	23.3%	9.7%	1.0%	100.0%

*Note.* 50.0% of cells have an expected count of less than five.

*Students’ perceptions of the importance of faculty/advisor mentoring and undergraduate persistence.* As noted in Table 16, the results of the analysis exploring the relationship between students’ perceptions of the importance of faculty/advisor mentoring and undergraduate persistence indicated a significant association between the two variables [ $\chi^2$  (df = 4, n = 103) = 12.216 with  $p = .016$ ]. Given this significant outcome, Cramer’s V was assessed, and the effect size was found to be .344—denoting a medium effect and a moderately strong relationship between the variables.

Additional investigation of the cross-tabulation produced by the Chi-square analysis between students’ perceptions of the importance of faculty/advisor mentoring and undergraduate persistence revealed that as students’ perceptions of the importance of mentoring increased, so did the proportion of students who completed their college

degrees. For example, of the 20 students who reported a “1” for importance, 16 (80.0%) graduated, while 85.4% (n=35) of the 41 students reporting a “2” graduated, and 89.7% (n=35) of the 49 students who reported a “3” graduated. Interestingly, compared to non-graduates, more graduates (81.5% v. 62.5%) chose importance levels of “2” or higher.

Table 19

*Relationship between First-Generation College Students’ Perceptions of the Importance of Faculty/Advisor Mentoring and Students’ Undergraduate Persistence*

Undergraduate Persistence	Students’ Perceptions of the Importance of Faculty/Advisor Mentoring					Total
	No importance	1	2	3	Greatest importance	
Not graduated from college	2	4	6	4	0	16
% within UG_Persist	12.5%	25.0%	37.5%	25.0%	0.0%	100.0%
% within Fac_Ment	100.0%	20.0%	14.6%	10.3%	0.0%	15.5%
% of Total	1.9%	3.9%	5.8%	3.9%	0.0%	15.5%
Graduated from college	0	16	35	35	1	87
% within UG_Persist	0.0%	18.4%	40.2%	40.2%	1.1%	100.0%
% within Fac_Ment	0.0%	80.0%	85.4%	89.7%	100.0%	84.5%
% of Total	0.0%	15.5%	34.0%	34.0%	1.0%	84.5%
Total	2	20	41	39	1	103
% of Total	1.9%	19.4%	39.8%	37.9%	1.0%	100.0%

*Note.* 50.0% of cells have an expected count of less than five.

***Students’ intra-institutional involvements and graduate educational aspirations.***

The analysis of association between first-generation students’ intra-institutional involvements and the outcome variable of graduate educational aspirations yielded no significant associations. The specific findings associated with the Chi-square test of independence conducted for this analysis are outlined in Table 20.

Table 20

*Relationship between First-Generation College Students' Intra-Institutional Involvements and Students' Graduate Educational Aspirations*

Intra-Institutional Involvements	$\chi^2$	df	Sig. ( $p < .10$ )	N
Frequency of student-student academic interaction	12.445	8	.132	103
Frequency of student-student social interaction	9.560	8	.297	103
Frequency of co-curricular involvement	7.118	8	.524	103
Frequency of student-faculty interaction	12.957	8	.113	103
Students' perceptions of the importance of faculty/advisor mentoring	7.532	8	.480	103
College type	1.811	4	.771	103
Total college cost	5.622	4	.229	103

***Differences between students' intra-institutional involvements and students' background characteristics.*** The variables representing students' background characteristics (i.e., inputs) and intra-institutional involvements were either originally categorical in nature or transformed into categorical variables for ease in executing the revised data analysis plan. Thus, in examining the differences between categorical inputs and categorical intra-institutional environments, the Chi-square test of independence ( $p < .10$ ) was used given that lack of relationship equates to lack of difference.

This analysis of relationship/difference with regard to students' intra-institutional involvements, noted in Table 21, indicated that there was a significant difference between the frequency of students' co-curricular involvement and pre-college academic aptitude.

Table 21

*Differences between First-Generation College Students' Intra-Institutional Involvements and Students' Background Characteristics*

Variables	$\chi^2$	df	Sig. (p < .10)	N
<b>Intra-Institutional Involvements</b>				
Student-student academic interaction <i>and</i> Frequency of pre-college engagement in cultural capital activities	11.034	12	.526	103
Pre-college academic aptitude	17.741	12	.124	103
Pre-college annual household income	15.036	12	.239	103
Generational status in the U.S.	8.298	8	.405	103
Sibling post-secondary attainment	1.867	4	.760	103
Pre-college educational aspirations	9.197	8	.326	103
Gender	3.031	4	.553	103
Race	12.199	12	.430	103
Student-student social interaction <i>and</i> Frequency of pre-college engagement in cultural capital activities	12.772	12	.386	103
Pre-college academic aptitude	17.716	12	.125	103
Pre-college annual household income	10.962	12	.532	103
Generational status in the U.S.	8.810	8	.359	103
Sibling post-secondary attainment	0.748	4	.945	103
Pre-college educational aspirations	4.086	8	.849	103
Gender	3.320	4	.506	103
Race	5.004	12	.958	103
Co-curricular involvement <i>and</i> Frequency of pre-college engagement in cultural capital activities	11.568	12	.481	103
Pre-college academic aptitude	23.900	12	.021*	103
Pre-college annual household income	14.243	12	.285	103
Generational status in the U.S.	9.610	8	.294	103
Sibling post-secondary attainment	4.942	4	.293	103
Pre-college educational aspirations	9.720	8	.285	103
Gender	4.279	4	.370	103
Race	10.932	12	.535	103
Student-faculty interaction <i>and</i> Frequency of pre-college engagement in cultural capital activities	9.857	12	.627	103
Pre-college academic aptitude	13.824	12	.312	103
Pre-college annual household income	17.599	12	.128	103
Generational status in the U.S.	3.966	8	.860	103

Sibling post-secondary attainment	2.244	4	.691	103
Pre-college educational aspirations	8.979	8	.344	103
Gender	3.573	4	.467	103
Race	13.647	12	.324	103
Students' perceptions of the importance of faculty/advisor mentoring <i>and</i>				
Frequency of pre-college engagement in cultural capital activities	13.801	12	.314	103
Pre-college academic aptitude	12.552	12	.402	103
Pre-college annual household income	10.500	12	.572	103
Generational status in the U.S.	4.651	8	.794	103
Sibling post-secondary attainment	1.615	4	.806	103
Pre-college educational aspirations	12.591	8	.127	103
Gender	3.744	4	.442	103
Race	6.952	12	.861	103

*Frequency of co-curricular involvement and pre-college academic aptitude.* As noted previously in Table 21, there was a difference between the frequency of students' co-curricular involvement and their pre-college academic aptitude [ $\chi^2$  (df = 12, n = 103) = 23.900 with p = .021]. Based on this significant finding, the researcher examined Cramer's V and found that the effect size was .278—denoting a medium effect and moderately strong relationship between the variables. This relationship was assessed further via review of the Chi-square cross-tabulation table.

Per Table 22, most students (59.2%, n = 61) in the first-generation sample reported one to nine hours of co-curricular involvement, as did most students in the 75-99<sup>th</sup> and 50-74<sup>th</sup> academic aptitude percentile ranges (58.1%, n = 50 and 81.8%, n=9, respectively). Interestingly, 94.2% (n = 97) of students in the sample spent 19 or fewer hours per week participating in co-curricular activities. Of the six students who reported more than 20 hours of co-curricular involvement, five (83.3%) were situated in the highest aptitude range (i.e., 74-99<sup>th</sup>).



Table 22

*Differences between First-Generation College Students' Co-Curricular Involvement and Students' Pre-College Academic Aptitude*

Frequency of Co-Curricular Involvement	Pre-College Academic Aptitude (ACT Score Percentiles -1999)				Total
	75-99th Percentile	50-74th Percentile	25-49th Percentile	<25th Percentile	
Zero Hours	9	1	1	0	11
% within CoCurr_Inv	81.8%	9.1%	9.1%	0.0%	100.0%
% within PC_AcApt	10.5%	9.1%	20.0%	0.0%	10.7%
% of Total	8.7%	1.0%	1.0%	0.0%	10.7%
1-9 Hours	50	9	2	0	61
% within CoCurr_Inv	82.0%	14.8%	3.3%	0.0%	100.0%
% within PC_AcApt	58.1%	81.8%	40.0%	0.0%	59.2%
% of Total	48.5%	8.7%	1.9%	0.0%	59.2%
10-19 Hours	22	1	2	0	25
% within CoCurr_Inv	88.0%	4.0%	8.0%	0.0%	100.0%
% within PC_AcApt	25.6%	9.1%	40.0%	0.0%	24.3%
% of Total	21.4%	1.0%	1.9%	0.0%	24.3%
20-29 Hours	4	0	0	1	5
% within CoCurr_Inv	80.0%	0.0%	0.0%	20.0%	100.0%
% within PC_AcApt	4.7%	0.0%	0.0%	100.0%	4.9%
% of Total	3.9%	0.0%	0.0%	1.0%	4.9%
30+ Hours	1	0	0	0	1
% within CoCurr_Inv	100.0%	0.0%	0.0%	0.0%	100.0%
% within PC_AcApt	1.2%	0.0%	0.0%	0.0%	1.0%
% of Total	1.0%	0.0%	0.0%	0.0%	1.0%
Total	86	11	5	1	103
% of Total	83.5%	10.7%	4.9%	1.0%	100.0%

*Note.* 80.0% of cells have an expected count of less than five.

Given the findings reported above for the analysis of relationships between students' intra-institutional involvements, background characteristics, and outcome variables, appropriate hypotheses conclusions as well as hypotheses rejection decisions are presented in the following section.

***Hypotheses conclusions.*** The hypotheses proposed for research sub-question two based on the original conceptualization of data analysis methods follow:

- Hypothesis Four: There will be a strong, positive relationship between students' a) intra-institutional peer interactions, b) intra-institutional co-curricular involvement, c) intra-institutional faculty interactions, and d) perceived importance of faculty mentoring to the study outcomes of undergraduate persistence and graduate educational aspirations.
- Hypothesis Five: There will be differences in students' intra-institutional involvements by students' race, gender, generational status in the U.S., pre-college annual household income, pre-college academic aptitude, pre-college educational aspirations, sibling post-secondary attainment, and frequency of pre-college engagement in cultural capital activities.

As discussed at the beginning of chapter four, data limitations prompted a change in the data analysis plan. Accordingly, the Chi-square test of independence served as the primary analytical tool for research sub-question two and, thus, compelled a slight change in the aforementioned hypotheses. In order to articulate the hypotheses in accordance with analytical revisions and for the sake of simplicity, all hypotheses were revised into their null counterparts. The updated hypotheses follow:

- Ho: There will be no significant relationship between a) the frequency of student-student academic interaction, b) the frequency of student-student social interaction, c) the frequency of co-curricular involvement, d) the frequency of student-faculty interaction, and e) students' perceptions of the importance of

faculty/advisor mentoring and the study outcomes of a) undergraduate persistence and b) graduate educational aspirations.

- Ho: There will be no significant differences between a) the frequency of student-student academic interaction, b) the frequency of student-student social interaction, c) the frequency of co-curricular involvement, d) the frequency of student-faculty interaction, and e) students' perceptions of the importance of faculty/advisor mentoring and students' a) race, b) gender, c) generational status in the U.S., d) pre-college annual household income, e) pre-college academic aptitude, f) pre-college educational aspirations, g) sibling post-secondary attainment, and h) frequency of pre-college engagement in cultural capital activities.

Based on the significance ( $p$ ) levels that corresponded to the Chi-square ( $\chi^2$ ) statistic for the relationships between students' intra-institutional involvements and the outcome variables as well as students' intra-institutional involvements and background characteristics, the researcher failed to reject parts of both consolidated null hypotheses. In an effort to provide an accurate portrayal of the parts of the hypotheses that were rejected, the researcher segmented the null hypotheses and articulated rejection decisions by dependent and independent variables of interest. Details are shown in Table 23.

Table 23

*Hypotheses Rejection Decisions for Research Sub-Question Two*

Null Hypotheses (Ho)	Retention Decision
Intra-Institutional Involvements and Study Outcomes	
There will be no significant relationship between the frequency of student-student academic interaction and the study outcome of undergraduate persistence.	Reject

There will be no significant relationship between the frequency of student-faculty interaction and the study outcome of undergraduate persistence.	Reject
There will be no significant relationship between students' perceptions of the importance of faculty/advisor mentoring and the study outcome of undergraduate persistence.	Reject
There will be no significant relationship between a) the frequency of student-student social interaction and b) the frequency of co-curricular involvement and the study outcome of undergraduate persistence.	Fail to Reject
There will be no significant relationship between a) the frequency of student-student academic interaction, b) the frequency of student-student social interaction, c) the frequency of co-curricular involvement, d) the frequency of student-faculty interaction, and e) students' perceptions of the importance of faculty/advisor mentoring and the study outcome of graduate educational aspirations.	Fail to Reject
<b>Student Background Characteristics and Intra-Institutional Involvements</b>	
There will be no significant differences between the frequency of students' co-curricular involvement and pre-college academic aptitude.	Reject
There will be no significant difference between a) the frequency of student-student academic interaction, b) the frequency of student-student social interaction, c) the frequency of student-faculty interaction, and d) students' perceptions of the importance of faculty/advisor mentoring and students' a) race, b) gender, c) generational status in the U.S., d) pre-college annual household income, e) pre-college educational aspirations, f) sibling post-secondary attainment, and g) frequency of pre-college engagement in cultural capital activities.	Fail to Reject

**Summary.** In summary, in the investigation of relationships between students' intra-institutional involvements and the outcome variables as well as students' intra-institutional involvements and background characteristics, four significant relationships were found. Most notably, findings related to the frequency of students' academic interaction with other students, the frequency of students' interaction with faculty, and students' perceptions of the importance of faculty/advisor mentoring emerged as compelling. These findings, in conjunction with other study results, will be interpreted and discussed further in chapter five.

#### **Research sub-question three hypotheses: Extra-institutional involvements.**

Sub-question three sought to assess the role of extra-institutional involvements through

examination of a) the frequency of student-parent interaction (as determined by frequency of home visits during the previous semester) and b) students' perceptions of the importance of family support in guiding them through their college careers.

As a secondary aim, this question also sought to determine if there were differences in extra-institutional involvements by students' background characteristics.

As aforementioned for the previous research questions, the original data analysis plan for exploring the relationship between the extra-institutional involvements and the study outcomes involved the use of a binary and multinomial logistic regressions.

However, as noted previously, data limitations would not permit the use of regression models. Accordingly, the relationship question was explored via the Chi-square ( $\chi^2$ ) test of independence using  $p < .10$ . Per guidelines of use for Chi-square, the researcher transformed all continuous environment/involvement variables into categorical variables (as described in Table 11) so that they could be examined in relation to the outcomes of undergraduate persistence and graduate educational aspirations. Based on this revised statistical approach to research sub-question three, the new research question follows:

- Is there a relationship between students' extra-institutional involvements (i.e., frequency of student-parent interaction, students' perceptions of the importance of family in guiding them through their college careers) and the study outcomes of undergraduate persistence and graduate educational aspirations?

The secondary "differences" question was not altered and follows:

- Is there a difference in extra-institutional involvements by student race, gender, generational status in the U.S., pre-college annual household income, pre-college

academic aptitude, pre-college educational aspirations, sibling post-secondary attainment, and frequency of pre-college engagement in cultural capital activities?

Given the research questions above, the association between each extra-institutional involvement variable and each outcome was analyzed via Chi-square. Additionally, differences between student background variables and extra-institutional involvements were explored. Results of both analyses as well as descriptive tables of noteworthy findings are included in the following section.

***Students' extra-institutional involvements and undergraduate persistence.***

Analysis of relationships between first-generation students' extra-institutional involvements and undergraduate persistence yielded one marginally significant relationship. As noted in Table 24, there was a significant relationship between the frequency of students' interaction with parents and undergraduate persistence.

Table 24

*Relationship between First-Generation College Students' Extra-Institutional Involvements and Students' Undergraduate Persistence*

Extra-Institutional Involvements	$\chi^2$	df	Sig. ( $p < .10$ )	N
Frequency of student-parent interaction	6.293	3	.098*	103
Students' perceptions of the importance of family in guiding them through their college careers	1.746	4	.782	103

*Frequency of student-parent interaction and undergraduate persistence.* As noted above, the Chi-square test for independence investigating differences between the frequency of student-parent interaction and students' undergraduate persistence produced a marginally significant result:  $\chi^2$  (df = 3, n = 103) = 6.293 with  $p = .098$ . Based on this finding, Cramer's V was evaluated, and the researcher found a medium effect size (i.e.,

.247) and, subsequently, a moderately strong relationship between the two variables

In addition to confirming a significant, moderately strong relationship between the frequency of student-parent interaction and undergraduate persistence, the Chi-square test also highlighted additional dynamics of the relationship. Per Table 25, most (73.8%, n =76) students in the first-generation sample visited parents one to nine times over the course of the previous fall term, and, of these 76 students, 85.5% (n=65) graduated college. Of the 10 students who made zero visits to their parents, 90.0% (n=9) completed college while 33.3% (n=1) of the three students who visited parents 30 or more times did so. Interestingly, the proportion of college completers in the “1-9 visits” and “10-19 visits” categories was nearly identical (85.5%, n = 65 and 85.7%, n =12, respectively).

Table 25

*Relationship between Frequency of First-Generation College Students’ Interactions with Parents and Students’ Undergraduate Persistence*

Undergraduate Persistence	Frequency of Student-Parent Interaction				Total
	Zero Visits	1-9 Visits	10-19 Visits	30+ Visits	
Not graduated from college	1	11	2	2	16
% within UG_Persist	6.3%	68.8%	12.5%	12.5%	100.0%
% within PS_Int	10.0%	14.5%	14.3%	66.7%	15.5%
% of Total	1.0%	10.7%	1.9%	1.9%	15.5%
Graduated from college	9	65	12	1	87
% within UG_Persist	10.3%	74.7%	13.8%	1.1%	100.0%
% within PS_Int	90.0%	85.5%	85.7%	33.3%	84.5%
% of Total	8.7%	63.1%	11.7%	1.0%	84.5%
Total	10	76	14	3	103
% of Total	9.7%	73.8%	13.6%	2.9%	100.0%

*Note.* 50.0% of cells have an expected count of less than five. Cells citing 20-29 visits were not populated by data.

### ***Students’ extra-institutional involvements and graduate educational***

***aspirations.*** The analysis of potential relationships between first-generation students’

extra-institutional involvements and the outcome variable of graduate educational aspirations yielded no significant associations. The specific findings associated with the Chi-square test for independence conducted for this analysis are outlined in Table 26.

Table 26

*Relationship between First-Generation College Students' Extra-Institutional Involvements and Students' Graduate Educational Aspirations*

Extra-Institutional Involvements	$\chi^2$	df	Sig. ( $p < .10$ )	N
Frequency of student-parent interaction	4.793	6	.571	103
Students' perceptions of the importance of family in guiding them through their college careers	8.124	8	.421	103

***Differences between students' extra-institutional involvements and students' background characteristics.*** In examining the differences between categorical inputs and categorical extra-institutional involvements, the Chi-square test of independence ( $p < .10$ ) was used given that lack of relationship equates to lack of difference. This analysis, detailed in Table 27, indicated that there were differences (i.e., significant or marginally significant relationships) between a) students' perceptions of the importance of family support in guiding them through their college careers and the frequency of pre-college engagement in cultural capital activities, b) students' perceptions of the importance of family support in guiding them through their college careers and pre-college educational aspirations, and c) students' perceptions of the importance of family support in guiding them through their college careers and race.



Table 27

*Differences between First-Generation College Students' Extra-Institutional Involvements and Students' Background Characteristics*

Variables	$\chi^2$	df	Sig. (p < .10)	N
Extra-Institutional Involvements				
Student-parent interaction <i>and</i> Frequency of pre-college engagement in cultural capital activities	12.080	9	.209	103
Pre-college academic aptitude	5.842	9	.758	103
Pre-college annual household income	10.003	9	.350	103
Generational status in the U.S.	6.317	6	.389	103
Sibling post-secondary attainment	0.910	3	.823	103
Pre-college educational aspirations	3.986	6	.679	103
Gender	2.500	3	.475	103
Race	6.091	9	.731	103
Importance of family support <i>and</i> Frequency of pre-college engagement in cultural capital activities	21.204	12	.047*	103
Pre-college academic aptitude	8.922	12	.710	103
Pre-college annual household income	14.953	12	.244	103
Generational status in the U.S.	7.035	8	.533	103
Sibling post-secondary attainment	3.354	4	.500	103
Pre-college educational aspirations	14.903	8	.061*	103
Gender	6.313	4	.177	103
Race	25.060	12	.015*	103

*Students' perceptions of the importance of family support and the frequency of pre-college engagement in cultural capital activities.* As aforementioned, the relationship between students' perceptions of the importance of family support in guiding them through their college careers and the frequency of pre-college engagement in cultural capital activities was investigated via the Chi-square test for independence. A marginally significant relationship was found [ $\chi^2$  (df = 12, n = 103) = 21.204 with  $p = .047$ ]. Based on this finding, Cramer's V was assessed, and a medium to large effect size was discovered (i.e., .262) pointing to a strong relationship between the variables

Additional investigation of the cross-tabulation produced by the Chi-square analysis of students' perceptions of the importance of family and the frequency of engagement in cultural capital activities yielded further details about this relationship. For example, per Table 28, the three students who perceived family support as unimportant also reported no pre-college engagement in cultural capital activities. Interestingly, of the 36 students who "never" engaged and the 54 students who "rarely" engaged in cultural capital activities, most in both groups (63.9%, n=23 and 75.9%, n=41, respectively) assessed family support as greatly important or just shy of such.

Table 28

*Differences between First-Generation College Students' Perception of the Importance of Family in Guiding Them through Their College Careers and Frequency of Students' Pre-College Engagement in Cultural Capital Activities*

Students' Perception of the Importance of Family in Guiding Them Through College Careers	Frequency of Pre-College Engagement in Cultural Capital Activities				Total
	Never	Rarely	Sometimes	Often	
No importance	3	0	0	0	3
% within Fam_Supp	100.0%	0.0%	0.0%	0.0%	100.0%
% within PC_CulCap	8.3%	0.0%	0.0%	0.0%	2.9%
% of Total	2.9%	0.0%	0.0%	0.0%	2.9%
1	3	6	0	0	9
% within Fam_Supp	33.3%	66.7%	0.0%	0.0%	100.0%
% within PC_CulCap	8.3%	11.1%	0.0%	0.0%	8.7%
% of Total	2.9%	5.8%	0.0%	0.0%	8.7%
2	7	7	2	2	18
% within Fam_Supp	38.9%	38.9%	11.1%	11.1%	100.0%
% within PC_CulCap	19.4%	13.0%	18.2%	100.0%	17.5%
% of Total	6.8%	6.8%	1.9%	1.9%	17.5%
3	17	30	4	0	51
% within Fam_Supp	33.3%	58.8%	7.8%	0.0%	100.0%
% within PC_CulCap	47.2%	55.6%	36.4%	0.0%	49.5%
% of Total	16.5%	29.1%	3.9%	0.0%	49.5%

Greatest importance	6	11	5	0	22
% within Fam_Supp	27.3%	50.0%	22.7%	0.0%	100.0%
% within PC_CulCap	16.7%	20.4%	45.5%	0.0%	21.4%
% of Total	5.8%	10.7%	4.9%	0.0%	21.4%
Total	36	54	11	2	103
% of Total	35.0%	52.4%	10.7%	1.9%	100.0%

*Note.* 65.0% of cells have an expected count of less than five. Cells citing “Always” were not populated by data.

*Students’ perceptions of the importance of family support and pre-college*

*educational aspirations.* As noted in Table 27, there was a difference between students’ perceptions of the importance of family support in guiding them through their college careers and students’ pre-college educational aspirations [ $\chi^2$  (df = 8, n = 103) = 14.903 with p = .061]. Based on this marginally significant finding, the researcher examined Cramer’s V and found that the effect size was .269—denoting a medium to large effect and a rather strong relationship between the variables. This relationship was assessed further via review of the Chi-square cross-tabulation table.

Per Table 29, of the 30 students who aspired to finish their bachelor’s degrees when questioned as college freshmen, most (76.7%, n=23) categorized the importance of family support as a “3.” While this number cannot be tightly interpreted given that no qualifiers were identified for this item’s response choices in the original NLSF instrument, the number’s proximity to the “greatest importance” category suggests that these students placed substantial value on family support. Similarly, of the 61 students who aspired to finish a graduate or other professional degree, the largest proportion (36.1%, n=22) responded with a “3.” Of the 22 students who placed the greatest importance on family support, most (72.7%, n=16) aspired to a graduate degree or other professional credential. Interestingly, of the three students who placed no importance on family support, all aspired to finish a graduate or other professional degree.

Table 29

*Differences between First-Generation College Students' Perception of the Importance of Family in Guiding Them through Their College Careers and Students' Pre-College Educational Aspirations*

Students' Perception of the Importance of Family in Guiding Them Through College Careers	Pre-College Educational Aspirations			Total
	Don't know	Finish bachelor's	Finish graduate or other professional degree	
No importance	0	0	3	3
% within Fam_Supp	0.0%	0.0%	100.0%	100.0%
% within PC_EdAsp	0.0%	0.0%	4.9%	2.9%
% of Total	0.0%	0.0%	2.9%	2.9%
1	1	1	7	9
% within Fam_Supp	11.1%	11.1%	77.8%	100.0%
% within PC_EdAsp	8.3%	3.3%	11.5%	8.7%
% of Total	1.0%	1.0%	6.8%	8.7%
2	3	2	13	18
% within Fam_Supp	16.7%	11.1%	72.2%	100.0%
% within PC_EdAsp	25.0%	6.7%	21.3%	17.5%
% of Total	2.9%	1.9%	12.6%	17.5%
3	6	23	22	51
% within Fam_Supp	11.8%	45.1%	43.1%	100.0%
% within PC_EdAsp	50.0%	76.7%	36.1%	49.5%
% of Total	5.8%	22.3%	21.4%	49.5%
Greatest importance	2	4	16	22
% within Fam_Supp	9.1%	18.2%	72.7%	100.0%
% within PC_EdAsp	16.7%	13.3%	26.2%	21.4%
% of Total	1.9%	3.9%	15.5%	21.4%
Total	12	30	61	103
% of Total	11.7%	29.1%	59.2%	100.0%

Note. 46.7% of cells have an expected count of less than five.

*Students' perceptions of the importance of family support and race.* As detailed in Table 27, there was a difference between students' perceptions of the importance of family support and students' race [ $\chi^2$  (df = 12, n = 103) = 25.060 with p = .015]. Given

this significant association, the researcher examined Cramer’s V and found that the effect size was .285—denoting a large effect and a strong relationship between the variables.

Additional investigation of the cross-tabulation produced by the Chi-square analysis of students’ perceptions of the importance of family support yielded further details about this relationship. As noted in Table 30, across all race groups, the largest proportion of students in each group categorized family support as a “3” (i.e., of substantial importance). The proportional details for this observation follow: Asian (48.0%, n=12), Black/African American (66.7%, n=10), Caucasian/White (61.1%, n=11), and Hispanic or Latino/a (40.0%, n=18). With regard to the “greatest importance” category, more Hispanic or Latino/a students (33.3%, n=15) fell into this category than any other students; they were followed by Asian students (20.0%, n=5).

Table 30

*Differences between First-Generation College Students’ Perception of the Importance of Family in Guiding Them through Their College Careers and Students’ Race*

Students’ Perception of the Importance of Family in Guiding Them Through College Careers	Race				Total
	Asian	Black/ African American	Caucasian/ White	Hispanic or Latino/a	
No importance	1	0	0	2	3
% within Fam_Supp	33.3%	0.0%	0.0%	66.7%	100.0%
% within Race	4.0%	0.0%	0.0%	4.4%	2.9%
% of Total	1.0%	0.0%	0.0%	1.9%	2.9%
1	0	4	0	5	9
% within Fam_Supp	0.0%	44.4%	0.0%	55.6%	100.0%
% within Race	0.0%	26.7%	0.0%	11.1%	8.7%
% of Total	0.0%	3.9%	0.0%	4.9%	8.7%
2	7	1	5	5	18
% within Fam_Supp	38.9%	5.6%	27.8%	27.8%	100.0%
% within Race	28.0%	6.7%	27.8%	11.1%	17.5%
% of Total	6.8%	1.0%	4.9%	4.9%	17.5%

3	12	10	11	18	51
% within Fam_Supp	23.5%	19.6%	21.6%	35.3%	100.0%
% within Race	48.0%	66.7%	61.1%	40.0%	49.5%
% of Total	11.7%	9.7%	10.7%	17.5%	49.5%
Greatest importance	5	0	2	15	22
% within Fam_Supp	22.7%	0.0%	9.1%	68.2%	100.0%
% within Race	20.0%	0.0%	11.1%	33.3%	21.4%
% of Total	4.9%	0.0%	1.9%	14.6%	21.4%
Total	25	15	18	45	103
% of Total	24.3%	14.6%	17.5%	43.7%	100.0%

*Note.* 65.0% of cells have an expected count of less than five.

Given the findings reported above for the analysis of relationships between students' extra-institutional involvements, background characteristics, and outcome variables, appropriate hypotheses conclusions as well as hypotheses rejection decisions are presented in the following section.

***Hypotheses conclusions.*** The hypotheses proposed for research sub-question three based on the original conceptualization of data analysis methods follow:

- Hypothesis Six: There will be a relationship between students' extra-institutional interaction with parents and the study outcomes of undergraduate persistence and graduate educational aspirations.
- Hypothesis Seven: There will be a strong, positive relationship between students' perceptions of family support and the study outcomes of undergraduate persistence and graduate educational aspirations.
- Hypothesis Eight: There will be differences in students' extra-institutional involvements by students' race, gender, generational status in the U.S., pre-college annual household income, pre-college academic aptitude, pre-college educational aspirations, sibling post-secondary attainment, and frequency of pre-college engagement in cultural capital activities?

Given the aforementioned data limitations, the Chi-square test of independence was utilized to examine all of the hypotheses articulated above for research sub-question three. As with previous research questions, all hypotheses were revised into their null counterparts and consolidated for simplicity. The updated hypotheses follow:

- Ho: There will be no significant relationship between a) the frequency of student-parent interaction and b) students' perceptions of the importance of family support in guiding them through their college careers and the study outcomes of a) undergraduate persistence and b) graduate educational aspirations.
- Ho: There will be no significant differences between a) the frequency of student-parent interaction and b) students' perceptions of the importance of family support in guiding them through their college careers and students' a) race, b) gender, c) generational status in the U.S., d) pre-college annual household income, e) pre-college academic aptitude, f) pre-college educational aspirations, g) sibling post-secondary attainment, and h) frequency of pre-college engagement in cultural capital activities.

Based on the significance ( $p$ ) levels that corresponded to the Chi-square ( $\chi^2$ ) test statistics for the relationships between the extra-institutional environments and the outcome variables as well as students' extra-institutional involvements and background characteristics, the researcher failed to reject parts of both consolidated null hypotheses. In an effort to convey a clear description of the parts of the hypotheses that were rejected, the researcher segmented the null hypotheses and articulated rejection decisions by dependent and independent variables of interest. Details are shown in Table 31.

Table 31

*Hypotheses Rejection Decisions for Research Sub-Question Three*

Null Hypotheses (Ho)	Rejection Decision
<b>Extra-Institutional Involvements and Study Outcomes</b>	
There will be no significant relationship between the frequency of student-parent interaction and the study outcome of undergraduate persistence.	Reject
There will be no significant relationship between students' perceptions of the importance of family support in guiding them through their college careers and the study outcome of undergraduate persistence.	Fail to Reject
There will be no significant relationship between a) the frequency of student-parent interaction and b) students' perceptions of the importance of family support in guiding them through their college careers and the study outcome of graduate educational aspirations.	Fail to Reject
<b>Student Background Characteristics and Extra-Institutional Involvements</b>	
There will be no significant differences between students' perceptions of the importance of family support in guiding them through their college careers and students' race.	Reject
There will be no significant differences between students' perceptions of the importance of family support in guiding them through their college careers and pre-college educational aspirations.	Reject
There will be no significant differences between students' perceptions of the importance of family support in guiding them through their college careers and the frequency of students' pre-college engagement in cultural capital activities.	Reject
There will be no significant differences between a) the frequency of student-parent interaction and students' a) race, b) gender, c) generational status in the U.S., d) pre-college annual household income, e) pre-college academic aptitude, f) pre-college educational aspirations, g) sibling post-secondary attainment, and h) frequency of pre-college engagement in cultural capital activities.	Fail to Reject

**Summary.** While no significant relationships were found between students' extra-institutional involvements (i.e., frequency of student-parent interaction and perceptions of the importance of family support in guiding them through their college careers) and the study outcome of graduate educational aspirations, associations were found between student-parent interaction and undergraduate persistence. Additionally, significant differences emerged between students' extra-institutional involvements and



students' background characteristics. These findings, as well as subsequent study findings, will be further explained and discussed in the following chapter.

**Research sub-question four hypotheses: Intra/extra-institutional involvements.** The fourth and final sub-question sought to examine the contribution of students' involvements in intra/extra-institutional environments, namely employment and living arrangements, to first-generation undergraduates' persistence and graduate educational aspirations. Further, as a secondary objective, this question also sought to determine if there were differences in intra/extra-institutional involvements in the context of students' background characteristics.

In alignment with previous research questions, the original data analysis plan for exploring the relationship between the intra/extra-institutional involvements and the study outcomes involved the use of a binary and multinomial logistic regressions. However, as noted previously, data limitations would not permit the use of regression models. Accordingly, the relationship question was explored via the Chi-square ( $\chi^2$ ) test for independence using  $p < .10$ . Per guidelines of use for Chi-square, the researcher transformed all continuous environment/involvement variables into categorical variables so that they could be examined in relation to the outcomes of undergraduate persistence and graduate educational aspirations. These variable transformations are detailed in Table 11. Based on the revised statistical approach to research sub-question four, the new primary research question follows:

- Is there a relationship between students' intra/extra-institutional involvements (i.e., weekly hours of employment, living arrangements) and the study outcomes of undergraduate persistence and graduate educational aspirations?

The secondary “differences” question was not altered and follows:

- Is there a difference in intra/extra-institutional involvements by student race, gender, generational status in the U.S., pre-college annual household income, pre-college academic aptitude, pre-college educational aspirations, sibling post-secondary attainment, and frequency of pre-college engagement in cultural capital activities?

Based on the research questions above, the association between each intra/extra-institutional involvement variable and each outcome variable was assessed via the Chi-square test. Additionally, differences between student background variables and intra/extra-institutional involvements were examined. Results of both analysis are described in the following section and accompanied by descriptive tables.

***Students’ intra/extra-institutional involvements and undergraduate persistence.***

The analysis of potential relationships between first-generation students’ intra/extra-institutional involvements and the outcome variable of undergraduate persistence yielded two significant or marginally significant relationships. Per Table 32, there was a significant relationship between a) students’ weekly hours of employment and undergraduate persistence and b) students’ living arrangements and undergraduate persistence.

Table 32

*Relationship between First-Generation College Students’ Intra/Extra-Institutional Involvements and Students’ Undergraduate Persistence*

Intra/Extra-Institutional Involvements	$\chi^2$	df	Sig. (p < .10)	N
Weekly hours of employment	6.450	3	.092*	.250
Living arrangements	11.861	2	.003*	.339

*Students' weekly hours of employment and undergraduate persistence.* As noted above in Table 32, a marginally significant relationship was found via the Chi-square test for independence between first-generation college students' weekly hours of employment and their undergraduate persistence [ $\chi^2$  (df = 3, n = 103) = 6.450 with  $p = .092$ ]. Given this finding, the associated correlation coefficient (i.e., Cramer's V) was explored to gauge the relationship's strength. Cramer's V indicated that the effect size was .250, thus, denoting a small to medium effect and a modestly strong relationship.

In addition to providing evidence of a significant association, the Chi-square test also provided cross-tabulations that revealed further details about the relationship between first-generation college students' weekly hours of employment and their undergraduate persistence. For example, as detailed in Table 33, of the 31 students who worked zero hours per week, most (74.2%) graduated within six years. Interestingly, the proportion of students who completed their undergraduate degrees was larger for the group of students who worked 11-20 hours per week (i.e., 87.0%, n=20) and larger still for the group of students working one to ten hours per week (93.0%, n=40). Of the 16 students who did not graduate, 50.0% did not report any weekly employment.

Table 33

*Relationship between First-Generation College Students' Weekly Hours of Employment and Student's Undergraduate Persistence*

Undergraduate Persistence	Weekly Hours of Employment				Total
	Zero hours	1 to 10 hours	11 to 20 hours	21+ hours	
Not graduated from college	8	3	3	2	16
% within UG_Persist	50.0%	18.8%	18.8%	12.5%	100.0%
% within Emp Hrs	25.8%	7.0%	13.0%	33.3%	15.5%
% of Total	7.8%	2.9%	2.9%	1.9%	15.5%

Graduated from college	23	40	20	4	87
% within UG_Persist	26.4%	46.0%	23.0%	4.6%	100.0%
% within Emp Hrs	74.2%	93.0%	87.0%	66.7%	84.5%
% of Total	22.3%	38.8%	19.4%	3.9%	84.5%
Total	31	43	23	6	103
% of Total	30.1%	41.7%	22.3%	5.8%	100.0%

Note. 37.5% of cells have an expected count of less than five.

*Students' living arrangements and undergraduate persistence.* Per Table 32, a significant relationship was found via the Chi-square test for independence between first-generation college students' living arrangements and their undergraduate persistence [ $\chi^2$  (df = 2, n = 103) = 11.861 with  $p = .003$ ]. Given this significant outcome, Cramer's V was assessed to gauge the strength of the relationship between the variables. The correlation coefficient was found to equal .330, thus, indicating a medium effect and a moderately strong relationship between the variables.

Additional investigation of the cross-tabulation produced by the Chi-square analysis between first-generation students' living arrangements and their undergraduate persistence revealed that, of the 103 students surveyed, an overwhelming majority (93.2%, n=96) reporting living in an on-campus residence hall or apartment. Per Table 34, of these 96 students who lived in an on-campus residence hall or apartment, 85.4% (n=82) graduated from college. Interestingly, neither student who reported living with parents or other relatives graduated from college; yet, of the five students who lived in an off-campus residence hall or apartment, all completed their undergraduate degrees.

Table 34

*Relationship between First-Generation College Students' Living Arrangements and Students' Undergraduate Persistence*

Undergraduate Persistence	Living Arrangements			Total
	On-campus dorm or apt	Off-campus dorm or apt	With parents or other relatives	
Not graduated from college	14	0	2	16
% within UG_Persist	87.5%	0.0%	12.5%	100.0%
% within Liv_Argmts	14.6%	0.0%	100.0%	15.5%
% of Total	13.6%	0.0%	1.9%	15.5%
Graduated from college	82	5	0	87
% within UG_Persist	94.3%	5.7%	0.0%	100.0%
% within Liv_Argmts	85.4%	100.0%	0.0%	84.5%
% of Total	79.6%	4.9%	0.0%	84.5%
Total	96	5	2	103
% of Total	93.2%	4.9%	1.9%	100.0%

Note. 66.7 % of cells have an expected count of less than five.

***Students' intra/extra-institutional involvements and graduate educational***

***aspirations.*** The analysis of relationships between students' intra/extra-institutional involvements and the outcome variable of graduate educational aspirations yielded no significant associations. The specific findings associated with the Chi-square test of independence conducted for this analysis are outlined in Table 35.

Table 35

*Relationship between First-Generation College Students' Intra/Extra-Institutional Involvements and Students' Graduate Educational Aspirations*

Intra/Extra-Institutional Involvements	$\chi^2$	df	Sig. (p < .10)	N
Weekly hours of employment	9.402	6	.152	103
Living arrangements	5.854	4	.210	103

***Differences in students' intra/extra-institutional involvements by students'***

***background characteristics.*** In examining the differences between categorical student background variables and categorical intra/extra-institutional involvements, the Chi-square test of independence ( $p < .10$ ) was used. This analysis, detailed in Table 36, indicated that there were marginally significant differences (i.e., relationships) between a) students' weekly hours of employment and students' pre-college annual household income and b) students' weekly hours of employment and students' race.

Table 36

***Differences between First-Generation College Students' Intra/Extra-Institutional Involvements by Students' Background Characteristics***

Variables	$\chi^2$	df	Sig. ( $p < .10$ )	N
<b>Intra/Extra-Institutional Involvements</b>				
<b>Weekly hours of employment and</b>				
Frequency of pre-college engagement in cultural capital activities	2.705	9	.975	103
Pre-college academic aptitude	7.605	9	.574	103
Pre-college annual household income	14.885	9	.094*	103
Generational status in the U.S.	6.747	6	.345	103
Sibling post-secondary attainment	2.110	3	.550	103
Pre-college educational aspirations	8.021	6	.237	103
Gender	1.597	3	.660	103
Race	15.536	9	.077*	103
<b>Living arrangements and</b>				
Frequency of pre-college engagement in cultural capital activities	5.932	6	.431	103
Pre-college academic aptitude	3.657	6	.723	103
Pre-college annual household income	2.858	6	.826	103
Generational status in the U.S.	4.500	4	.342	103
Sibling post-secondary attainment	2.727	2	.256	103
Pre-college educational aspirations	1.723	4	.786	103
Gender	1.205	2	.547	103
Race	3.246	6	.777	103

*Students' weekly hours of employment and pre-college annual household income.*

As noted above in Table 36, a marginally significant difference was found via the Chi-square test of independence between first-generation college students' weekly hours of employment and their pre-college annual household income [ $\chi^2$  (df = 9, n = 103) = 14.885 with  $p = .094$ ]. Given this marginally significant outcome, the associated correlation coefficient (i.e., Cramer's V) was explored in order to gauge the strength of the relationship. Cramer's V indicated that the effect size was .219, thus, denoting a small to medium effect and a modestly strong relationship between the variables.

Additional investigation of the cross-tabulation produced by the Chi-square analysis of first-generation college students' weekly hours of employment and students' pre-college annual household income revealed that the six students who worked 21 or more hours per week were parsed equally into three of the four income categories: None fell into the highest income category (\$75,000 or more). Additionally, as indicated in Table 37, of the 31 students who reported working "zero hours," the largest proportion (38.7%, n=12) represented pre-college annual household incomes between \$25,000 and \$49,999 and the smallest proportion (16.1%, n=5) was comprised of students reporting incomes "Under \$25,000." Further, of the 23 students who worked 11-20 hours per week, the largest proportion (34.8%, n=8) fell into the "Under \$25,000" income category.

Table 37

*Differences between Students' Weekly Hours of Employment and Students' Pre-College Annual Household Income*

Pre-College Annual Household Income	Weekly Hours of Employment				Total
	Zero hours	1 to 10 hours	11 to 20 hours	21+ hours	
Under \$25,000	5	12	8	2	27
% within Income	18.5%	44.4%	29.6%	7.4%	100.0%
% within Emp Hrs	16.1%	27.9%	34.8%	33.3%	26.2%
% of Total	4.9%	11.7%	7.8%	1.9%	26.2%
\$25,000-49,999	12	23	6	2	43
% within Income	27.9%	53.5%	14.0%	4.7%	100.0%
% within Emp Hrs	38.7%	53.5%	26.1%	33.3%	41.7%
% of Total	11.7%	22.3%	5.8%	1.9%	41.7%
\$50,000-74,999	6	7	5	2	20
% within Income	30.0%	35.0%	25.0%	10.0%	100.0%
% within Emp Hrs	19.4%	16.3%	21.7%	33.3%	19.4%
% of Total	5.8%	6.8%	4.9%	1.9%	19.4%
\$75,000 or More	8	1	4	0	13
% within Income	61.5%	7.7%	30.8%	0.0%	100.0%
% within Emp Hrs	25.8%	2.3%	17.4%	0.0%	12.6%
% of Total	7.8%	1.0%	3.9%	0.0%	12.6%
Total	31	43	23	6	103
% of Total	30.1%	41.7%	22.3%	5.8%	100.0%

*Note.* 43.8 % of cells have an expected count of less than five.

*Students' weekly hours of employment and race.* As noted above in Table 36, a marginally significant difference was found via the Chi-square test of independence between first-generation college students' weekly hours of employment and race [ $\chi^2$  (df = 9, n = 103) = 15.536 with  $p = .077$ ]. Given this finding, the associated correlation coefficient (i.e., Cramer's V) was explored in order to gauge the strength of the relationship. Cramer's V indicated that the effect size was .224, thus, denoting a small to medium effect and a modestly strong relationship between the variables.



Further scrutiny of the Chi-square analysis of first-generation college students' employment and race provided additional insight. For example, per Table 38, of the 31 students who reported working zero hours per week during the academic year, the largest proportion (29.0%, n=9) indentified as Asian. Interestingly, of the six students who reported working 21 or more hours per week, half identified as Asian while two (33.3%) identified as Hispanic or Latino/a and one (16.7%) identified as Caucasian/White. Further, of the 43 students working "1-10 hours" and the 23 students working "11-20" hours per week, Hispanic or Latino/a students consistently comprised the largest (and majority) proportion in both groups: 53.5% (n=23) and 56.5% (n=13), respectively.

Table 38

*Differences between Students' Weekly Hours of Employment and Students' Race*

Race	Weekly Hours of Employment				Total
	Zero hours	1 to 10 hours	11 to 20 hours	21+ hours	
Asian	9	11	2	3	25
% within Race	36.0%	44.0%	8.0%	12.0%	100.0%
% within Emp Hrs	29.0%	25.6%	8.7%	50.0%	24.3%
% of Total	8.7%	10.7%	1.9%	2.9%	24.3%
Black/African American	8	3	4	0	15
% within Race	53.3%	20.0%	26.7%	0.0%	100.0%
% within Emp Hrs	25.8%	7.0%	17.4%	0.0%	14.6%
% of Total	7.8%	2.9%	3.9%	0.0%	14.6%
Caucasian/White	7	6	4	1	18
% within Race	38.9%	33.3%	22.2%	5.6%	100.0%
% within Emp Hrs	22.6%	14.0%	17.4%	16.7%	17.5%
% of Total	6.8%	5.8%	3.9%	1.0%	17.5%
Hispanic or Latino/a	7	23	13	2	45
% within Race	15.6%	51.1%	28.9%	4.4%	100.0%
% within Emp Hrs	22.6%	53.5%	56.5%	33.3%	43.7%
% of Total	6.8%	22.3%	12.6%	1.9%	43.7%
Total	31	43	23	6	103
% of Total	30.1%	41.7%	22.3%	5.8%	100.0%

*Note.* 43.8 % of cells have an expected count of less than five.

Given the findings reported above for the analysis of relationships between students' intra/extra-institutional involvements, background characteristics, and outcome variables, appropriate hypotheses conclusions as well as hypotheses rejection decisions are presented in the following section.

***Hypotheses conclusions.*** The hypotheses proposed for research sub-question four based on the original conceptualization of data analysis methods follow:

- Hypothesis Nine: There will be a relationship between students' intra/extra-institutional weekly hours of employment and the study outcomes of undergraduate persistence and graduate educational aspirations.
- Hypothesis Ten: There will be a strong, positive relationship between students' living arrangements and the study outcomes of undergraduate persistence and graduate educational aspirations.
- Hypothesis Eleven: There will be differences in students' intra/extra-institutional involvements by students' race, gender, generational status in the U.S., pre-college annual household income, pre-college academic aptitude, pre-college educational aspirations, sibling post-secondary attainment, and frequency of pre-college engagement in cultural capital activities?

Given the aforementioned data limitations, the Chi-square test of independence was utilized to examine all of the hypotheses articulated above for research sub-question four. As with previous research questions, all hypotheses were revised into their null counterparts and consolidated for simplicity. The updated hypotheses follow:

- Ho: There will be no significant relationship between students' a) weekly hours of employment and b) living arrangements and the study outcomes of a) undergraduate persistence and b) graduate educational aspirations.
- Ho: There will be no significant differences between students' a) weekly hours of employment and b) living arrangements and students' a) race, b) gender, c) generational status in the U.S., d) pre-college annual household income, e) pre-college academic aptitude, f) pre-college educational aspirations, g) sibling post-secondary attainment, and h) frequency of pre-college engagement in cultural capital activities.

Based on the significance ( $p$ ) levels that corresponded to the Chi-square ( $\chi^2$ ) statistics for the relationships between intra/extra-institutional environments and study outcomes, the researcher failed to reject parts of both consolidated null hypotheses. As before, the researcher segmented the null hypotheses and articulated rejection decisions by dependent and independent variables of interest. Details are shown in Table 39.

Table 39

*Hypotheses Retention Decisions for Research Sub-Question Four*

Null Hypotheses (Ho)	Retention Decision
Intra/Extra-Institutional Involvements and Study Outcomes	
There will be no significant relationship between students' a) weekly hours of employment and b) living arrangements and the study outcome of undergraduate persistence.	Reject
There will be no significant relationship between students' a) weekly hours of employment and b) living arrangements and the study outcome of graduate educational aspirations.	Fail to Reject
Student Background Characteristics and Intra/Extra-Institutional Involvements	
There will be no significant differences between students' weekly hours of employment and students' pre-college annual household income.	Reject

There will be no significant differences between students' weekly hours of employment and students' race.	Reject
There will be no significant differences between students' a) weekly hours of employment and students' a) gender, b) generational status in the U.S., c) pre-college academic aptitude, d) pre-college educational aspirations, e) sibling post-secondary attainment, and f) frequency of pre-college engagement in cultural capital activities.	Fail to Reject
There will be no significant differences between students' living arrangements and students' a) race, b) gender, c) generational status in the U.S., d) pre-college annual household income, e) pre-college academic aptitude, f) pre-college educational aspirations, g) sibling post-secondary attainment, and h) frequency of pre-college engagement in cultural capital activities.	Fail to Reject

**Summary.** While students' intra/extra-institutional involvements (i.e., weekly hours of employment and living arrangements) were not found to be significantly associated with the study outcome variable of graduate educational aspirations, both involvement variables did emerge as related to undergraduate persistence. Further exploration also revealed significant differences between students' weekly hours of employment and pre-college annual household income as well as students' race. These findings, in tandem with other study results, may play a key role in study implications and will be discussed further in the following chapter of this study.

#### **Chapter Four Summary**

This chapter described the results of the analytical methods used to explore the study's four sub-research questions in an effort to understand the factors that may or may not relate to the undergraduate persistence and graduated educational aspirations of first-generation college students attending elite institutions. While the original, logistic-regression based data analysis plan could not be executed given challenges with sample size, model complexity, and data set limitations, the researcher did attempt to explore the relationships between student background characteristics, intra- and extra-institutional

environments, and the study outcomes using the Chi-square test of independence. While modest in number, significant findings were uncovered with regard to environmental variables and student backgrounds. These findings are summarized in Table 40.

Table 40

*Summary of Significant Relationships between Study Variables*

Inputs	Inputs and Intra-Institutional Environments	<ul style="list-style-type: none"> <li>• Co-curricular involvement and pre-college academic aptitude</li> </ul>
	Inputs and Extra-Institutional Environments	<ul style="list-style-type: none"> <li>• Students' perceptions of the importance of family support in guiding them through their college careers and <ul style="list-style-type: none"> <li>• Race</li> <li>• Pre-college educational aspirations</li> <li>• Frequency of students' pre-college engagement in cultural capital activities</li> </ul> </li> </ul>
	Inputs and Intra/Extra-Institutional Environments	<ul style="list-style-type: none"> <li>• Students' weekly hours of employment and <ul style="list-style-type: none"> <li>• Race</li> <li>• Pre-college annual household income</li> </ul> </li> </ul>
	Inputs and Outcomes	<ul style="list-style-type: none"> <li>• Pre-college educational aspirations and undergraduate persistence</li> </ul>
Environments	Intra-Institutional Environments and Outcomes	<ul style="list-style-type: none"> <li>• Frequency of student-student academic interaction and undergraduate persistence</li> <li>• Frequency of student-faculty interaction and undergraduate persistence</li> <li>• Students' perceptions of the importance of faculty mentoring and undergraduate persistence</li> </ul>
	Extra-Institutional Environments and Outcomes	<ul style="list-style-type: none"> <li>• Frequency of student-parent interaction and undergraduate persistence</li> </ul>
	Intra/Extra-Institutional Environments and Outcomes	<ul style="list-style-type: none"> <li>• Students' weekly hours of employment and undergraduate persistence</li> <li>• Students' living arrangements and undergraduate persistence.</li> </ul>

Given the findings noted above, the following chapter will delve into these study results with a discussion of interpretations and implications for practice. Additionally, chapter five will address a number of the study limitations and present commentary on suggestions for future research with first-generation college students.

## **Chapter Five: Discussion**

This chapter will deliver a discussion of the findings that emerged from the investigation of the relationships between the background characteristics, involvements in environments on- and off-campus, and the study outcomes of undergraduate persistence and graduate educational aspirations for first-generation students at elite institutions. The chapter will open with a review of the study's problem statement, revised research questions—as relayed in chapter four—and the research design utilized to address the research questions. This review will be followed by interpretation and discussion of the results in the context of existing scholarship as well as the findings' relationship with actual practice. Finally, the chapter will close with a disclosure of the limitations of the study and directions for future research on the first-generation college student population.

### **Review of Problem Statement, Revised Research Questions, and Research Design**

**Problem statement.** As expressed in chapter one, first-generation college students' journeys to and through undergraduate and graduate programs may be different from those of their non-first peers. These pioneers must not only balance the academic responsibilities common to any college student but they must also negotiate the intricacies of the being “first” in their families to do so (Oldfield, 2007). Given first-generation students' backgrounds and the complexities of their home and college environments, a number of factors may test their resolve in achieving their educational goals (Davis, 2010; Inman & Mayes, 1999; McConnell, 2000; Rhiel, 1994; Terenzini et al., 1996). Based on this hypothesis, the purpose of this study was to examine the factors that potentially contribute to the undergraduate persistence and graduate educational aspirations of first-generation students attending selective colleges/universities. The

study was conducted utilizing data collected via the National Longitudinal Survey of Freshmen (NLSF) from undergraduates attending 28 elite U.S. institutions.

**Revised research questions and research design.** As noted above, the original intent of this study was to determine the factors that “contributed” to the undergraduate persistence and graduate educational aspirations of first-generation college students attending elite institutions. Based on the study’s conceptual framework, this primary research question was divided into four research sub-questions examining the role of student background characteristics (i.e., inputs) and students’ on- and off-campus environments in study outcomes. As detailed in chapters three and four, original data analysis methods for the investigation of “contribution” included binary and multinomial logistic regressions with supplemental Chi-square tests of independence. However, given the sample size and data set limitations discussed in the previous chapter, the four research sub-questions and, subsequently, research methods, were revised. The new research design hinged on the analysis of relationships between categorical predictor and outcome variables and, as such, on the sole use of Chi-square tests of independence. The revised primary research question as well as the four research sub-questions follow:

1. Is there a relationship between first-generation college students’ background characteristics and involvements in environments on-and off-campus and students’ undergraduate persistence and graduate educational aspirations?
  - a. Is there a relationship between student background characteristics (i.e., race, gender, generational status in the U.S., pre-college annual household income, pre-college academic aptitude, pre-college educational aspirations, sibling post-secondary attainment, and



frequency of pre-college engagement in cultural capital activities) and the outcome variables of undergraduate persistence and graduate educational aspirations?

- b. Is there a relationship between students' intra-institutional involvements (i.e., frequency of student-student academic interaction, frequency of student-student social interaction, frequency of co-curricular involvement, frequency of faculty interaction, and students' perceptions of the importance of faculty mentoring) and the study outcomes of undergraduate persistence and graduate educational aspirations?

- i. Is there a difference in intra-institutional involvements by student race, gender, generational status in the U.S., pre-college annual household income, pre-college academic aptitude, pre-college educational aspirations, sibling postsecondary attainment, and frequency of pre-college engagement in cultural capital activities?

- c. Is there a relationship between students' extra-institutional involvements (i.e., frequency of student-parent interaction, students' perceptions of the importance of family in guiding them through their college careers) and the study outcomes of undergraduate persistence and graduate educational aspirations?

- i. Is there a difference in extra-institutional involvements by student race, gender, generational status in the U.S., pre-

college annual household income, pre-college academic aptitude, pre-college educational aspirations, sibling postsecondary attainment, and frequency of pre-college engagement in cultural capital activities?

- d. Is there a relationship between students' intra/extra-institutional involvements (i.e., weekly hours of employment, living arrangements) and the study outcomes of undergraduate persistence and graduate educational aspirations?
  - i. Is there a difference in intra/extra-institutional involvements by student race, gender, generational status in the U.S., pre-college annual household income, pre-college academic aptitude, pre-college educational aspirations, sibling postsecondary attainment, and frequency of pre-college engagement in cultural capital activities?

Though data limitations necessitated the revision of research questions, use of a) the Chi-square test of independence to determine the presence of significant relationships between study variables and b) appropriate ad hoc analyses to understand the strength of significant relationships in addition to examinations of cross-tabulation tables, enabled the researcher to uncover a number of noteworthy findings. A summary of these findings, to include a discussion of the findings in the context of the study's conceptual framework as well as a discussion of select sample demographics, is presented below. Where appropriate, findings' connections to existing literature, to include the scholarship scaffolding the study's conceptual framework, will be underscored.

## **Summary and Discussion of Results**

In the previous chapter, a number of significant relationships emerged between study input and environment variables and the study outcome of undergraduate persistence that, for the most part, were supported by the study's conceptual framework. While the study's altered research design tempered an understanding of the contributory nature of input and environment variables to persistence—as consistent with a “true” application of Astin's (1970, 1993) I-E-O model—the potency of intra-institutional environments aligned with the tenants of Astin's (1984, 1993, 1996) involvement theory. Interestingly, the fact that significant associations with undergraduate persistence were not exclusive to intra-institutional environments suggests that Bean and Metzner's (1985) Non-Traditional Undergraduate Student Attrition Model, which highlights the value of involvements and relationships external to the college environment, is an appropriate lens with which to understand first-generation students. Per Reason's (2009) assertion, student environments can be “concentric,” quite complex, and more broadly defined.

While the study findings spoke more explicitly to the three conceptual framework pillars noted above, they were more subtly connected to the fourth: Bourdieu's (1977) concepts of cultural capital and habitus. No significant relationships emerged between the frequency of students' pre-college engagement in cultural capital activities and study outcomes, yet, the variable was associated with an environment that related to undergraduate persistence. This potentially indirect relationship modestly suggests that there may be an interplay between cultural capital and habitus and outcomes.

Bourdieu's (1977) theories and the larger conceptual framework, as a whole, provided a scaffold upon which an exploration of the graduate educational aspirations

and undergraduate persistence of first-generation students' attending elite institutions could be conducted. Both the alignments and departures from the framework are discussed in the following section in the context of study results and interpretations.

**Sample characteristics.** Female students comprised over half of the study's first-generation student sample, thus, corresponding with the work of Saenz et al. (2007), which revealed that 16.9% of all women in the CIRP-based study were first-generation students, as compared to 14.7% of all men. Similar findings were shared by Horn and Nevill (2006) who also discovered that first-generation students were more likely to be women. Yet, while the findings presented in the current literature validate the results of this study, this validation must be tempered given that the overrepresentation of female first-generation students could be due to the overrepresentation of women in the larger NLSF population (i.e., 58.1% women) and in the 1999 enrollee composition for two- and four-year institutions (i.e., 56.1% women) (U.S. Department of Education, 2001).

With regard to racial differences in the first-generation student sample, the researcher found that Hispanic or Latino/a students comprised the largest proportion of the sample followed by Asian students, Caucasian/White students, and Black/African American students, respectively. When the researcher compared first-generation students with non-first-generation students, this finding was elaborated: Caucasian/White students comprised the largest proportion of non-first-generation students. While one of the objectives of the NLSF was to include equal numbers of students from specific race groups, the unequal representations in the first-generation group are aligned with current scholarship. For example, the work of Somers et al. (2004) revealed that first-generation students were more likely to be ethnic minorities, and the work of Horn and Nuñez

(2000), Horn and Nevill (2006), and Choy (2001) posited that first-generation students were more likely to be African American and Latino/a. Given the support for this study's findings, the results suggest that, with regard to race, first-generation student groups will be composed similarly across institutions, regardless of selectivity.

In addition to uncovering details about student gender and race, the researcher also found that nearly two-thirds of the students in the first-generation sample were either born abroad or children of parents born abroad. Further comparative analysis revealed that most non-first-generation students were U.S.-born with U.S.-born parents. These findings are affirmed by Saenz et al. (2007), who, in their CIRP study found that 27.7% of non-U.S. citizens were likely to be first-generation students. Similarly, Fortuny et al. (2009) and Larsen (2004) posited the prevalence of immigrants or children of immigrants in the first-generation student community.

Given the findings that emerged with regard to generational status in the U.S., the researcher conducted an investigation of the intersection between race and generational status in the U.S. so as to understand better students' places of origin and ethnic identities. Within-generational group analysis revealed that more Asian students were immigrants born to, at least, one immigrant parent and that, of the students born in the U.S. to at least one immigrant parent, most were Hispanic or Latino/a. Parents' geographic immigrant roots were traced back, in large part, to South Korea and China for Asian students and to Mexico for Hispanic or Latino/a students. Given the small sample size of African American/Black students with foreign-born parents, social origins were not examined; however, this omission should be broached in future study.

The country of origin analysis provided a perspective on the individuality of students despite this study's consolidation of students into four discrete race groups and concurred with current literature on immigration patterns. For example, Larsen (2004), in a detailed 2003 census summary on the country of origin for the U.S.'s foreign-born population, reported that Central America represents the birth home of nearly 37.0% of the U.S.'s foreign-born residents while Asia represents 25.0%, Europe 13.7%, the Caribbean 10.1%, South American 6.3%, and other regions 8.0%. Further, Fortuny et al. (2009), in their detailed study of the children of immigrants, reported that 55.0% of children of immigrants were of Hispanic origin while 19.0% were White, 18.0% were Asian, and 8.0% were Black. In alignment with this study's findings, Fortuny et al. discovered that most children of immigrants had parents from Latin America, with the largest proportion of these parents (i.e., 41.1%) hailing from Mexico.

This study's findings, with regard to the intersection between race and generational status in the U.S., suggest that, while statistics may distinguish first-generation student groups on the basis of race as a first-blush differentiator, students' identities and their connections to outcomes are more complex. In fact, above and beyond race, regardless of institutional classification, immigrant identity and ethnic identification may play a role in the realization of outcomes for first-generation students in practical matters such as English language competency, negotiating college cultural norms, and family involvement (Teranishi, Suárez-Orozco, & Suárez-Orozco, 2011).

In addition to investigating the intersections with generational status in the U.S. highlighted above, the researcher also examined students' pre-college annual household income and discovered that nearly two-thirds of the students in the first-generation

sample reported household incomes under \$50,000 in their senior year of high school. Further analysis comparing first- and non-first-generation students revealed that most non-first-generation students reported incomes of \$75,000 or more while most first-generation students reported incomes of \$25,000-49,999. These findings aligned with the work of Jenkins (2007), Murphy and Hicks (2003), and Saenz et al. (2007) who confirmed that the first-generation profile was often linked to more modest means. Further, these findings suggest that first-generation students' financial circumstances might be more alike than different across institutional type.

Given the link between first-generation students' race and potential financial fragility discussed earlier in the study, the researcher explored the intersection between student race and income. While nearly two-thirds of first-generation students in the sample, regardless of race, reported annual household incomes under \$50,000, Hispanic or Latino/a students were overrepresented in the "Under \$25,000" quartile. While this finding emerged from the NLSF income data collected from students in the fall of 1999, current literature on the financial circumstances of Hispanic or Latino/a individuals underscores that these students might be particularly prone to financial concerns.

Brown, Santiago, and Lopez (2003), in their analysis of Latino/a students in higher education, emphasized the fact that these students are likely to experience financial stress in the context of college affordability. Taking race, generational status, and income into account, Erisman and Looney (2007), in their recent report on higher education access prepared for the Institute for Higher Education Policy, noted that "More than a third of Latin American immigrants...earn incomes below 150 percent of the federal poverty level" (p. 6). Thus, the data suggest that first-generation Hispanic or

Latino/a students, especially those who may be immigrants or children of immigrants, may be particularly vulnerable in terms of college-going financial stressors.

In addition to annual household income and its intersection with students' race and generational status in the U.S., this study also explored students' pre-college academic aptitude. While first-generation college students populated lower aptitude categories at higher rates, the vast majority of first-generation students were strong performers (i.e., fell into the 75<sup>th</sup> - 99<sup>th</sup> ACT percentiles). For the most part, this study's findings run counter to some of the scholarship (e.g., Warburton et al., 2001) on first-generation college students that points to challenges with pre-college preparation and standardized college entry exams. Yet, the fact that most students' scores were clustered in the highest percentile range comes as little surprise considering that the NLSF included students at elite institutions for which college admissions criteria were quite robust.

As part of the sample demographics exploration, the researcher also investigated the pre-college educational aspirations of the first-generation college student sample. This exploration revealed that most first-generation students aspired to a master's or other professional degree when asked at the start of their college careers. The finding that a majority of the students aspired to a master's or other professional degree contrasts with Walpole's (2003) research, which highlighted the more modest graduate aspirations of first-generation students. It is critical to note, however, that this contradiction in findings might be attributable to the uniqueness of the sample and parallel Hayden's (2008) discovery that the degree of aspirations did not differ between the "firsts" and "non-firsts" in her study of NLSF students. Hayden hypothesized that the high selectivity of the NLSF institutions were a mediating factor in aspirations.



A continued exploration of student background variables, specifically the proportion of first-generation college students with older siblings who had earned undergraduate degrees, revealed that, while most non-first- and first-generation students reported no sibling college graduates, the proportion of first-generation students who reported one or more siblings with a college degree was slightly larger. This finding is more difficult to interpret and could mean, quite simply, that the study's first-generation students had more siblings in general, thus, increasing odds of having older siblings with degrees. Yet, this finding could also be a building block for deeper thinking around the benefits of older siblings. While the literature on first-generation college students and the roles of their older, college-experienced siblings is limited, some scholarship does note the benefit of household role models (e.g., Ceja, 2006). Among others, this facet, in particular, of the first-generation college student experience does require further study.

The final input variable explored as part of the sample demographics discussion was "frequency of pre-college engagement in cultural capital activities." As detailed in chapter four, most of the first-generation students responded that they engaged "rarely" while the next largest proportion reported that they "never" engaged. Further analysis comparing first- and non-first-generation students revealed that, while most non-first- and first-generation students engaged "rarely," non-first engagement was skewed toward higher frequencies overall. These findings are unsurprising given the hypothesized modesties in cultural capital for first-generation students (e.g., Davis, 2010) and further underscore the variance between the first- and non-first pre-college experience.

As a means to unpack a key component of this pre-college experience, the researcher explored the frequency of engagement in cultural capital activities and its

intersection with income. Analysis showed that first-generation students who reported pre-college annual household incomes under \$25,000, were overrepresented in the “never” response to pre-college engagement. In fact, this study also uncovered a trend of modest to no engagement across all income ranges with a vast majority of the wealthiest first-generation students indicating only rare engagement. Interestingly, however, when compared with non-first-generation students, first-generation students not only reported lower incomes, but they also engaged in cultural capital activities less frequently. This finding is aligned with Jensen’s (2004) work, which asserted that cultural capital is tied to upwardly mobile, socioeconomically solvent home environments and implies that the differentiators between first- and non-first-generation students persist at elite colleges.

Yet, though the analysis of first-generation students’ “frequency of pre-college engagement in cultural capital activities” yielded unsurprising results, especially when compared with results for non-first-generation college students, the findings prompted this study’s researcher to ask the following question: If cultural capital is perceived as playing a key role in institutional choice (Berger, 2000) and this study’s first- and non-first students differed in engagement frequencies, how then did these differing groups select (and get selected for) the same elite institutions? One can only surmise that “cultural capital” is measured by more than exposure to cultural activities and/or it is most potent (as offered by Bowen et al. (2009)) when meshed with financial privilege.

Speaking to this hypothesis, a recent study by Zimdars, Sullivan, and Heath (2009) of 1700 applicants to the University of Oxford found that cultural capital factors operationalized as participation in the “beaux arts” (e.g., exposure to museums, travel) were not quite relevant to educational outcomes. In fact, students’ gender, race, and

academized “cultural knowledge,” as cultivated by reading, played a more vital role in admission to elite Oxford. Thus, demographic snapshots of cultural capital engagement for first-generation college students in the beaux arts alone may not be contributory enough, particularly in the context of first-generation students, college choice, and their place in elite institutions. Further, this study’s findings suggest that, once again, intersectionality of background variables (e.g., engagement in cultural capital, income, race, and family social origin) might provide the best method for understanding the factors that contribute to first-generation college student outcomes across institutions.

The findings relevant to engagement in cultural capital activities discussed above as well as the additional results summarized and analyzed, hopefully, encourage broader thinking about first-generation college students and the larger context in which they work to persist and aspire to dreams. While first-generation students can be “invisible” on college campuses, including elites, because there is no outward declaration of “first-generation-ship,” this discussion of their individual attributes may add to the depth of what is known in an effort to serve these pioneers. As a means to continue this process of discovery, additional results, in the context of study research questions that yielded significant results, will be summarized and discussed in the following section.

**Research sub-question one: Student backgrounds.** As summarized in Table 40, the study revealed a significant relationship between first-generation students’ pre-college educational aspirations and their undergraduate persistence. Further, an overwhelming majority of the students who aspired to finish a bachelor’s degree or graduate or other professional degree completed college. These findings counter the work of Adelman (2006), who, while examining factors contributing to college

graduation, found that students' bachelor's degree "anticipations" (expectations for the bachelor's degree as measured in 10<sup>th</sup> and 12<sup>th</sup> grade) were not related to long-term persistence. Yet, Dubow, Boxer, and Huesmann (2009), while examining data collected via the 40-year Columbia County Longitudinal Study, found that individuals' secondary and post-secondary educational aspirations (as disclosed at age 19) played a significant role in educational attainment. In fact, the authors found that educational aspirations were a mediating factor for other individual effects such as parental education—i.e., higher levels of parental education led to higher aspirations and, thus, better attainment.

Though Dubow et al.'s (2009) findings conflict with Adelman's (2006) work, perhaps, the conflict suggests that pre-college educational aspirations may indeed relate significantly to undergraduate persistence but that they may be most powerful when combined with additional, contributing individual effects. These individual effects may be curated and cultivated in the context of pre-college cultural capital and, as Strayhorn (2010) offered, the associated habitus.

#### **Research sub-question two: Intra-institutional involvements.**

*Student-student academic interaction and undergraduate persistence.* As expressed in Table 40, this study revealed a significant association between the frequency of students' academic interactions with each other in their first year of undergraduate work and students' undergraduate persistence. Further analysis indicated that, for the largest proportion of first-generation students who graduated, interaction with each other was quite rare. Yet, despite modest interactions for a good deal of the sample, overall, more students on the higher end of the interaction scale graduated than did students on the lower end. These findings are bittersweet in that they endorse the value of student-

student academic interaction to persistence but paint a dismal picture with regard to frequency of involvement in the first year overall.

The rarity of first-generation students' academic interactions with peers underscores concerns about these students' overall level of intra-institutional involvement (Koch, 2008) and suggests either that systemic issues of non-inclusion and discouragement are at play or that students are choosing less interaction in their first year. Perhaps, the fact that the sample was drawn from selective institutions where individuals' sense of academic self-efficacy might be higher also translated into fewer peer "study dates." Yet, while it advances concerns, the data also suggest that these interactions have value and not only support Pascarella and Terenzini's (1991, 2005) and Astin's (1993) assertions regarding the potency of peer groups to the collegiate outcomes of students, in general, but also Cushman's (2007) position that, for first-generation students specifically, academic networks are important to persistence.

***Student-faculty interaction and undergraduate persistence.*** The researcher uncovered a significant relationship between the frequency of first-generation college students' interactions with faculty and their undergraduate persistence. Additional analysis showed that, while most first-generation students interacted with faculty rarely on the weekly basis, the vast majority of these students did complete their undergraduate degrees. Interestingly, though a small group, *all* of the students who interacted with faculty nearly always earned their undergraduate degrees. While the student-faculty interaction variable for this study could not be parsed into "course-oriented" and "non-course-oriented" given data possibilities, based on the composite variable's construction, this study's finding suggests a number of hypotheses about faculty interaction.

The fact that most students completed degrees despite the nature of interactions with faculty, could, once again, speak to the self-efficacy of the students at the 28 elite institutions represented in this study. Yet, the modest levels of interaction could also be attributable to the discomfort and intimidation experienced by first-generation college students in reaching out to faculty (Longwell-Grice & Longwell-Grice, 2008; NSSE, 2007) given their potential unfamiliarity with college norms. As Berger (2000) summarized in his discussion of post-secondary institutions, social reproduction, and cultural capital, this discomfort could be tethered to students' understanding of what they are "entitled to" in life as shaped by a) cultural capital and b) interactions with the colleges that they attend. First-generation students, in particular, despite enrollment at elite institutions, may not know that accessing faculty is not only appropriate but also essential. Further, first-generation students' sense of appropriate entitlement may not be encouraged by the elite institutions, which are potentially grounded in a culture of independence and self-directed seeking of opportunities (Stephens, 2009).

However, the finding that *all* students who interacted with faculty nearly "always" graduated might be promising on a number of fronts. It might suggest that strong, motivated students destined to persist, regardless of interactions, happened to seek out faculty. Alternately, this finding could suggest that interactions with faculty are a key ingredient for undergraduate persistence. This latter point concurs with the general research noting that student-faculty interaction plays a significant role in the achievement of student outcomes such as persistence, attainment, institutional fit, and overall sense of well-being (Astin, 1993; Inkelas et al., 2007; Kuh et al., 1991, 2005; Pascarella & Terenzini, 1991, 2005; Sax et al., 2005; Svanum & Bigatti, 2009). While the current

scholarship on the contribution of student-faculty interaction to the persistence of first-generation students, specifically, is limited, Strayhorn (2010) and Kim and Sax (2009) did relate these interactions to mediating factors for first-generation persistence such as satisfaction with college and undergraduate grade point average.

***Importance of faculty/advisor mentoring and undergraduate persistence.*** A final finding with regard to intra-institutional involvements, per Table 40, highlighted the significant association between students' perceptions of the importance of faculty/advisors in guiding them through their college careers (i.e., mentoring for the purposes of this study) and undergraduate persistence. Additional analysis revealed that, as students' perceptions of the importance of faculty mentoring increased, so did the proportion of students who completed their college degrees. This finding is supported by the work of Barnett (2006), who found that for students, a third of whom were first-generation students, feeling known and valued by faculty, being mentored by faculty, and sensing an appreciation for diversity by faculty contributed to students' intent to persist. The finding is also validated by Campbell and Nutt (2008), who described the important place of academic advisors: "When viewed as an educational process and done well, academic advising plays a critical role in connecting students with learning opportunities to foster and support their engagement, success, and the attainment of key learning outcomes" (p. 1). The saliency of faculty/advisor guidance and mentoring to first-generation students' persistence suggests that, perhaps more than course-based student-faculty interaction, authentic concern expressed by these key campus figures is vital.

***Background characteristics and students' intra-institutional involvements.***

*Co-curricular involvement and pre-college academic aptitude.* The researcher found a significant difference between the frequency of students' co-curricular involvement as freshmen and their pre-college academic aptitude. Further investigation showed that the vast majority of the students in the sample spent 19 or fewer hours per week participating in co-curricular activities with most students in the highest two aptitude percentile ranges reporting one to nine hours of involvement. Interestingly, most of the students who reported more than 20 hours of involvement were situated in the highest aptitude percentile range. These findings suggest that, while most of the first-generation students were conservative with the amount of co-curricular involvement, higher-aptitude students were well-represented in the most involved group.

While the link between higher-aptitude students and more co-curricular involvement might be attributed to feelings of self-efficacy at elites and/or the association of co-curricular activities with academics, the overall modesties in involvement might be rooted differently. Given that these results emerged from data collected during students' freshman year, the finding of modest involvement might imply that students, in general, were more conservative about co-curricular involvement in favor of establishing academic routines or spending time with family. As noted earlier in this study, first-generation students' levels and types of involvements may be different (e.g., focus only on academic involvements) or constrained because of external commitments (e.g., work and family obligations) (Walpole, 2003), unfamiliarity with the college culture (Terenzini et al., 1996), feelings of marginalization, and/or preferences/necessity for involvement with family and friends external to the institution (Lundberg et al., 2007). The fact that



modesties in involvement persist at elite colleges, however, implies that engaging first-generation college students may be challenging regardless of institutional type.

**Research sub-question three: Extra-institutional involvements.**

*Student-parent interaction and undergraduate persistence.* The researcher found a significant relationship between the frequency of student-parent interaction for students as freshmen and undergraduate persistence. Deeper analysis revealed that the proportion of graduates was nearly the same (i.e., approximately 85.0%) for both the “1-9 visits” and “10-19 visits” categories; yet, slightly more students who made no home visits completed college, and only a third of the students who visited 30 or more times did so. These findings, while cautiously interpreted given the small number of students in the high-visit category, suggest that student-parent interaction should not necessarily be lumped in with the “non-involvements” (Astin, 1993) that may detract from student progress. This point is further underscored given that the results shared here represent the tendencies of first-year students, who may, more than their sophomore through senior counterparts, crave and need interaction in larger doses during the transition to college.

While this study’s results indicated that “no” student-parent interaction proved slightly better for persistence, overall, the detrimental “drop-off” did not happen until students visited parents 30 or more times. Thus, it seems that, for first-generation students for whom connection with family in the “external” environment is particularly salient as they negotiate the potential college/home cultural divide (Davis, 2010), beneficial home visitations should be supported. In fact, while “during college” first-generation student-parent interaction scholarship is limited, the 2007 NSSE (NSSE, 2007) found that undergraduate students, in general, with parents who were in frequent

contact (and who intervened frequently) reported higher levels of engagement, greater gains in college outcomes, and, despite lower grades, more satisfaction with college.

***Background characteristics and students' extra-institutional involvements.***

*Importance of family support in guiding students through their college careers and race.* The researcher discovered a significant difference between students' perceptions of the importance of family support in guiding them through their college careers and students' race. Additional investigation revealed that, not only was family support substantially important to all first-generation students, it was of utmost importance to Hispanic or Latino/a students and, secondarily, Asian students. This finding suggests that, while family support was critical across the board, students of color, who may also be immigrants or children of immigrants, are particularly sensitive to family support. Not only are these students navigating the first-generation student path, but they may also be navigating the "divided consciousness" (Jengahir, 2010) between home and college culture where issues of ethnic, cultural, and/or racial identities interplay (Rendón et al., 2000; Tierney, 1992) and family connection is most salient.

*Importance of family support in guiding students through their college careers and pre-college educational aspirations.* As noted in Table 40, the researcher discovered a significant difference between students' perceptions of the importance of family support and pre-college educational aspirations. Further analysis revealed that, of the students who placed the "greatest importance" on family support, most aspired to a graduate degree or other professional credential. These findings suggest that more perceived family support connects to loftier educational aspirations for first-generation college students at elite institutions and vice versa. The reciprocal nature of this

relationship may indeed be attributed to the students' general home culture (habitus) of support and encouragement for the educational process. For example, Acker-Ball (2007) found that, regardless of family background and SES, the majority of parents of first-generation students, while not all proactive in the college-going process, reinforced the importance of a college. This finding might be particularly salient for the first-generation students in this sample given that the importance placed on higher education may have translated to enrollment at elite colleges and universities.

*Importance of family support in guiding students through their college careers and pre-college engagement in cultural capital activities.* Findings showed a significant difference between students' perceptions of the importance of family and the frequency of students' pre-college engagement in cultural capital activities. Closer scrutiny of the data revealed that the few students who perceived family support as unimportant also reported no engagement. Yet, most of the students who reported low or no engagement, all rated family support as important or greatly important. These findings suggest that, while students might associate support with exposure to cultural capital-building activities, how first-generation students in this sample conceptualized family support, in general, had little to do with exposure to the beaux arts, museums, and travel as youngsters. Perhaps, as posited by Gofen (2009), families' attitudes toward education, expressions of love, and transmission of values mattered most in the college path context.

**Research sub-question four: Intra/extra-institutional involvements.**

*Weekly hours of employment and undergraduate persistence.* The researcher found a significant relationship between students' first-year weekly hours of employment and undergraduate persistence. Further investigation revealed that the proportion of

students who completed their undergraduate degrees was quite large (i.e., over 85.0%) within the group that worked 11-20 hours per week and larger still for the group working one to ten hours per week. Interestingly, the proportion of completers dropped off slightly for students working zero hours and slightly more for students working 21 or more hours. These findings provide a mix of insight. First, the findings related to students working the most hours suggest that, as Astin (1993) noted, “non-involvements” such as work obligations (particularly those off-campus) can be detrimental to outcomes. Students’ need to work excessively, however, may be a forced choice given first-generation students’ potential financial challenges (Engle et al., 2006; Walpole, 2003) and, for this study sample, the potentially hefty price tag of an elite education. Thus, without intent to do so, students are compromising undergraduate persistence.

Second, the findings suggest that some amount of student employment (particularly on-campus—as supported by Astin (1993)) may actually be more beneficial to undergraduate persistence than no student employment at all. Perhaps intentional employment might be contributing to cognitive enrichment and, thus, persistence. Yet, despite the seeming clarity of the findings in this study, the relationship between employment and persistence is complex given that not only is the quantity of work at issue, but also up for debate is the type and geography. As Perna (2010) offered, “...understanding how employment affects students’ educational experiences is complicated by why students work” (¶ 3), and, thus, any speculation about the connection between work and persistence necessitates more exploration.

***Living arrangements and undergraduate persistence.*** As indicated in Table 40, the study’s analysis revealed a significant relationship between first-generation students’

living arrangements and undergraduate persistence. Additional investigation revealed that an overwhelming majority (i.e., over 90.0%) of students lived in an on-campus residence hall or apartment, and the vast majority of these students graduated from college. Interestingly, all of the students who lived in off-campus residence halls or apartments completed college but students who reported living with either parents or other relatives did not earn their degrees by spring 2005.

Though the relationship with persistence was significant, the findings above with regard to living arrangements are difficult to interpret. While the results might suggest that living on-campus is second to living off-campus with regard to positive outcomes, more details regarding the type of off-campus residence halls occupied by students and their variance from on-campus facilities are required. Further, given that over 90.0% of students reported living on-campus, which is understandable given the freshman status of respondents, the favorable outcome for this living arrangement might not only be due to the association between residence halls and positive outcomes for first-generation students (Inkelas et al., 2007), but also the sheer numbers of students nested in this housing category. Additionally, given that some of the first-generation scholarship (e.g., Asrat, 2007; Koch, 2008) points to these students likely commuting to campus, the anomaly of this study's findings and its potential relationship with the selectivity of students' institutions should be studied further.

***Background characteristics and intra/extra-institutional involvements.***

*Weekly hours of employment and pre-college annual household income.* The researcher found a significant difference between students' weekly hours of employment and students' pre-college annual household income. Additional analysis revealed that

students who worked 21 or more hours per week (the most), were not represented in the highest income category. Further, lowest income students comprised the largest proportion of students working 11-20 hours per week and the smallest proportion of students working zero hours per week. These findings suggest that the students with the most financial need may also be the students who are working the greatest number of hours per week, regardless of institutional type. Though speculative, this point raises questions about the potential mediating effect of income on student persistence.

If, as found in this study, involvements outside of employment are related to undergraduate persistence, then students with financial need may be at an attainment disadvantage if excessive work demands prevent them from engaging in beneficial environments. As Sherlin (2002) found, higher income had both direct and indirect effects on persistence to include the facilitation of more college involvement leading to attainment. Given this study's earlier findings regarding the income disparities between first- and non-first-generation students, results might suggest that, regardless of equivalent access to high-caliber, elite institutions, first-generation students might have to work doubly hard just to meet the status quo and remain enrolled.

*Weekly hours of employment and race.* Analysis revealed a significant difference between students' weekly hours of employment and students' race. Of the students who reported working zero hours per week during the academic year, the largest proportion indentified as Asian while Hispanic or Latino/a students consistently comprised the largest (and majority) proportion of student groups working "1-10 hours" and "11-20" hours per week. This latter finding underscores the intersectionality of race, generational status in the U.S., financial need, student employment, and, potentially, persistence. Not

only did Hispanic or Latino/a students report working the most, they also comprised the largest proportion of students in the lowest income quartile and were, in great proportion, children of immigrants. Thus, an extrapolation of these findings, given earlier analysis, might point to the potential challenges experienced by Hispanic or Latino/a students not only with the large college engagement themes but also with the tactical financial issues relevant to remaining enrolled. As such, scholarships and transition support may play a bigger role for first-generation Hispanic or Latino/a students than for their peers.

**Results discussion summary.** The results discussion above initiated a dialogue about the study's findings, their connection or conflict with current scholarship, and potential avenues for further understanding the first-generation student both at elite and non-elite institutions. As noted in Table 40, the relationships that emerged were mostly tethered to the concentric environments (per Figure 1) upheld by the study's conceptual framework that represented the complexity of the first-generation student's college life. Table 40 also underscored that no inputs or environments were related with graduate educational aspirations despite the known parallels with development of pre-college aspirations, such as finances and familial encouragement (Payne, 2006). As such, graduate educational aspirations, in the context of first-generation students, require further study before changes in practice can be made with regard to them. However, given what is known from the discussion above, the following section will address broad implications for practice in the continued pursuit of serving first-generation students.

### **Implications for Practice**

The undergraduate persistence of first-generation college students is enmeshed with a host of ambient factors such as family, peers, faculty and advisors, just to name a

few. Thus, in considering the practices most appropriate to fostering first-generation student attainment and success, the African proverb “it takes a village to raise a child,” must be the theme mantra. While these implications are not about the “raising” of first-generation students, they do center around the community approach critical to supporting these pioneers on the path to and through higher education. Accordingly, the following implications will emphasize roles for student affairs practitioners, university faculty and advisors, first-generation students’ parents and family, university leadership and administrators, and policymakers so as to delineate unique responsibilities as well as places for partnership for those touching the lives of first-generation students. While these implications are inspired by findings rooted in the circumstances of first-generation students attending elite institutions, it is the researcher’s hope that the suggestions for practice can be applied universally to engage and bolster all first-generation students.

**Student affairs practitioners.** Student affairs practitioners are often-times students’ ambassadors to the larger campus. Among the many avenues for connection with students, student affairs professionals manage orientations, residence halls, career centers, and student activities and, as such, are in a rare position to help shepherd, validate, and engage first-generation students. Harper and Quaye (2009) offered that “...students should not be chiefly responsible for engaging themselves..., but instead administrators and educators must foster the conditions that enable diverse populations of students to be engaged” (p. 6), and Rendón (2002) echoed this point with regard to non-traditional students and students of color, in particular. Given the fact that first-generation students are more likely to be students of color, represent a number of ethnicities, come from lower income backgrounds, and, possibly, be immigrants or



children of immigrants, helping students establish a connection with the campus while validating students' home culture and previous experiences is critical to caring for the whole student. As noted in chapter two of this study, the transition to college for first-generation students may indeed involve a straddling of home and college culture, and, such, it is the responsibility of student affairs practitioners, in partnership with other educators, to help ease the way.

Given the philosophy of inclusion and validation with which student affairs practitioners should approach first-generation students and the fact that many of the findings in this study point to first-year involvements, these professionals should create meaningful opportunities for intra-institutional involvement with peers, both academically- and socially-focused, that help first-generation students establish a sense of belonging within the university community. For example, practitioners, with the support of leaders and administrators, should consider special academic and social support centers for first-generation college students replete with resources on navigating the academic obligations, information on co-curricular clubs and organizations, resources on financial aid and scholarships, counseling on student employment, resources for mental health needs, and access to discipline-based peer-tutors and peer and staff mentors.

In alignment with Harper and Quaye's (2009) and Oldfield's (2007) insights, these centers should be at the physical, accessible heart of campus and coordinate informal (e.g., social gatherings) and formal programs (e.g., orientation courses) aimed at inclusion and education. Importantly, the brick and mortar centers should be supplemented by a robust online presence in an effort to reach commuting students or students who spend less time on campus. Additionally, these centers should include a

parental component that would allow for communication and exchange with first-generation students' families in an effort to validate students' home life and help families support students. Staff and faculty representing the diversity (e.g., race, ethnicity, language) of first-generation students should be recruited to be present in the centers in order to foster inclusivity and to help students develop a sense of belonging.

Additionally, student affairs administrators and practitioners should lead the way in creating dedicated communities for first-generation students that honor these pioneers without stigmatizing them (Saenz et al., 2007). For example, practitioners should consider special first-generation student-led clubs, academic Greek-letter organizations, and advocacy outlets tailored toward celebrating and knitting together first-generation students while still creating avenues for inclusion on the larger campus. In addition to organization-based communities, practitioners and student affairs administrators should consider innovating special housing for first-generation students, akin to the First Scholars program recently launched at the University of Kentucky that provides first-year, first-generation students with a special residence hall designed to enable, careful non-stigmatized support. As with any of the suggestions above, “careful” and “thoughtful” are key qualifiers given the risk of isolation and peer judgment that could accompany attempts to launch special initiatives for first-generation students.

**Faculty and academic advisors.** Faculty inhabit a unique space in the lives of first-generation college students in that students will always be in the classroom in one manner or another and, thus, always be exposed to faculty. As Tinto (1997) offered, the classroom lies at the heart of learning in the higher education context. As such, faculty are in a prime position to shape undergraduate student persistence via supportive and

educative interactions with students. This study's results indicated that, while first-year students interacted little with faculty, interactions were of some value, overall. Given this finding and the previously noted scholarship that indicates first-generation students might be intimidated by faculty, faculty should reach out more intentionally. For example, faculty should work with academic advisors and student affairs professionals to understand more fully the types of students in their classes so that they can begin to formulate a strategy for creating affirming learning environments that acknowledge and celebrate the difference first-generation students bring to the college campus. As noted by Rendón (2002), affirming and validating learning environments are especially important to non-traditional students and students of color, and, given that first-generation students can be described as both, the in-class environment matters.

In addition to attending to the classroom, faculty should also develop their role with regard to supporting first-generation students outside the classroom. Faculty should volunteer to serve as formal and informal mentors to first-generation students through campus resource, career, and counseling centers. Further, faculty should engage with first-year, first-generation students outside their own classes by advising first-generation-specific student groups or teaching and/or guest lecturing college orientation courses or first-year experience symposiums. As noted in a recent study by Pan and Bai (2010), the faculty role in academically integrating first-year students can be critical to students' long-term persistence. Given that first-generation students' sense of social "entitlement" (per Berger, 2000) may influence how/if they seek out faculty, it is critical for faculty to take the first step. Accordingly, faculty should reach out and encourage first-generation students to participate in research work as a means to decrease students' feelings of

intimidation or academic marginalization. Finally, in addition to facilitating interaction between themselves and students, faculty are also in a position to facilitate interaction *between* students and, as such, should develop course curricula that encourage peer-to-peer learning, teaching, and mentoring.

Academic advisors, much like faculty, were perceived as important sources of support during the college careers of the first-generation students surveyed in this study. Similar to faculty, advisors have a unique opportunity to mentor and guide first-generation college students much more comprehensively. As Torres (2006) noted, advisors are gatekeepers and can provide a safe space for first-generation students to ask questions and become familiar with the larger campus environments. As such, academic advisors should work with faculty and student affairs professionals to institute “triage” protocols for first-generation students who are particularly vulnerable to attrition. These students might include first-generation students who are immigrants or children of immigrants who might be contending with language acquisition issues in addition to the general challenges of becoming familiar with the college environment. Additionally, advisors can work with first-generation parent resource centers and, as suggested by Hicks (2002), orientation programs to engage the parents and families of first-generation students in an effort to validate students’ home life and help parents and families understand their important roles in the college careers of their children.

**Family members.** This study revealed that first-generation students perceived family support as vital to their college careers and, as such, families must have a role in nurturing and fortifying students throughout the college process. However, as offered by Acker-Ball (2007), Cabrera and Padilla (2004), and Rowan-Kenyon et al. (2008), this

role may look differently for different students: more moral support-oriented for some and more tactical for others. Further, the type of support may be tethered to cultural capital indicators, which could be linked to issues of economic standing. As such, families should not feel that there is a right or wrong way to support students in the college-going process but simply become as informed as they can in an effort to build a habitus inclusive of college talk. In doing so, families might attempt to familiarize themselves with their students' institutions.

This process of familiarization could include taking a walk on campus, speaking with supportive and informative staff in the financial aid, career, counseling, or first-generation resource centers. In order to offer the most appropriate (and manageable) support, families should take an informal inventory of their students' needs with regard to college in such areas as emotional support, time, space, and desired levels of involvement. While for first-generation students, families' ability to help with financial needs can be much more complex, families should encourage students to ask their advisors, faculty, and residence hall advisors about scholarships, work-study opportunities, and other resourcing. Families should also encourage students to be their own advocates and to find safe spaces to ask questions.

Additionally, families should feel comfortable seeking information about how best to support their students from sources other than the student's institution. For example, a number of community programs are designed to work with the families of non-traditional and first-generation students in an effort to inform and support. Along these lines, national organizations such as the College Board and the Hispanic Scholarship Fund offer online college guidance resource centers as well as no cost,

community-based college counseling seminars. Further, the U.S. Department of Education provides information online about the college-going process as well as funding resources through [www.college.gov](http://www.college.gov). Additionally, local churches, community colleges, and high schools may offer low or no cost programs aimed at helping families learn about college and support their students in the process. These options provide families with an opportunity to understand their first-generation students' experience in safe spaces that may not be as intimidating as the unknown college campus.

**College/university leadership and administration.** Those involved with institutional leadership and administration are in optimal positions to effect change for the betterment of first-generation students' persistence. These individuals not only have a bird's eye view of the institutional issues that benefit and detract from student success but also have the agency to engage with external partners to create opportunities for first-generation students. The data for this study reflected that pre-college educational aspirations might be significantly related to undergraduate persistence but, potentially, most powerful when combined with a pre-college habitus fully encouraging of post-secondary work. Thus, the question becomes: What can institutional agents do to shift students' and families' pre-dispositions toward college? Further, given what is known about the social reproductions that manifest in and through higher education, what can colleges and universities do to change the climate of privilege?

Administrators can begin to broach these questions by creating and sustaining secondary-to-post-secondary bridge programs and summer institutes such as the TRIO program that introduce students (and families) to the language of college in an effort to norm and familiarize post-secondary pursuits. These programs might be particularly

beneficial to lower-income first-generation students, first-generation students of color, and first-generation students who are immigrants or children of immigrants. Further, and also recommended by Harper and Quaye (2009), institutions can weave the university into secondary schools and tend to the college information gap (Vargas, 2004) via avenues such as field trips to college campuses, faculty lectures in high school courses, pre-college academic advising, financial aid workshops, parent workshops in English and native language, no/low cost SAT/ACT preparation, and pre-college career development programming that begins to link college attainment with future possibilities.

In addition to boosting students' pre-college pre-dispositions in an effort to bolster persistence, institutional leaders and administrators could also work to make college a more reasonable, sustained possibility for first-generation students. Given the financial challenges faced by first-generation students, university leadership could re-visit how private merit and need-based aid is distributed and consider the development of scholarship funds specifically for first-generation college students. Additionally, given that this study raised some questions about the benefit of student employment and its potential to compromise persistence if excessive and/or located off-campus, leaders, in conjunction with federal aid administrators and policymakers, should undertake a serious review of federal work study policy and, as Perna (2010) suggested, the student work culture on campus. Institutional administrators should create additional opportunities for students to contribute toward their education by working in environments that enrich their academic and professional portfolios (e.g., student research with faculty, tutoring).

Additionally, university leaders and administrators can work to humanize institutions and enact diverse learning environments (Hurtado, Milem, Clayton-Pederson,

& Allen, 1999) in which first-generation college students (and their families) of differing backgrounds can see themselves in college administrators, staff, and faculty and feel more connected and included in the larger campus culture. Relatedly, administrators can support faculty and other educators across campus in their own development regarding the needs of first-generation college students and, simultaneously, encourage educators to develop validating curricula—as suggested by Rendón (2002)—that enable first-generation students, particularly students of color, to explore their experiences.

**Policymakers.** As shared in chapter one, a primary goal of policymakers, particularly within the current political administration, is to increase access to higher education for a larger number of Americans in an effort to enhance the U.S.’s global competitiveness. First-generation students represent a population that could benefit greatly from policy changes easing some of the barriers to college entry and degree attainment. For example, while university administrators can re-dedicate private funds to help low-income, first-generation students, changes in work-study regulations, PELL disbursements, and other federal aid program adjustments are largely in the hands of high-level policymakers. As such, Congress, with the encouragement of university leadership, must tend to college affordability and, as asserted by President Barack Obama (Obama, 2012) in the 2012 State of Union Address, work to keep interest rates on student loans manageable and extend the college tuition tax credit for eligible families.

In addition to supporting federal efforts, policymakers at the state level should examine the P-16 educational pipeline and the systemic issues (e.g., learning accountability, teacher involvement, curricula, geographic imbalances in standards, neighborhood privilege) that may be contributing to or detracting from first-generation



students' pre-dispositions toward college. This call to action is particularly important given that early educational experiences, as noted in chapter two, contribute to students' formations of educational aspirations. These pre-college aspirations, as found in this study, are potentially linked to undergraduate persistence. By scrutinizing the educational playing field, policymakers can make positive strides toward slicing through the cycle of social reproduction (Berger 2000; Bourdieu, 1977) that sustains an imbalance in the ways in which students amass the cultural capital necessary for higher education.

In addition to scrutinizing the systemic issues prevalent to first-generation students, state policymakers should also work with universities to develop auxiliary and research funding streams dedicated to improving access by creating scholarships and launching college awareness campaigns for students and families throughout the elementary, middle, and secondary process. While the point is not to force every student into college, the goal is to make college search, choice, and financing transparent for first-generation students and their families.

### **Limitations of the Study**

Though this study's findings provided fodder for practical implications designed to bolster the success of first-generation students, the study was not without its limitations. First, it is important to note that the sample was drawn from students only enrolled at elite U.S. institutions, and, as such, findings cannot be generalized to first-generation students enrolled in a broader range of colleges and universities. Additionally, within this "elite" group, as evidenced in Appendix A, religiously-affiliated institutions, minority-serving institutions, and women- or men-only institutions were underrepresented. Given that levels of student engagement and approaches to student

development may be different at these institutions, as evidenced by Nelson Laird, Bridges, Morelon-Quainoo, Williams, and Holmes (2007) and Laden (2001) in their studies of learning environments at historically Black colleges and Hispanic-serving institutions, respectively, no assumptions should be made about the universal treatment and outcomes of first-generation students at elite colleges.

A second limitation is represented by the small sample size of first-generation college students available for this study. While the complete NLSF population numbered 3,924 students and the number of first-generation students within that population was close to 300, after the researcher purged the data set of missing values and ambiguous non-responses, the first-generation sample was reduced to 103 students. The removal of a large number of cases may have not only removed data vital to a stronger analysis but also, as described in chapter four, played a significant role in the inability of the researcher to pursue the original, multivariate research design. Further, the sample size reduction may have contributed to the cross-tabulations cell size violations (i.e., too few cases in cross-tabulation cells) noted in chapter four. Given this violation, assumptions about relationships necessitate the use of prudence and conservatism in interpretation.

A third limitation is also related to sample construction. Specifically, the NLSF included three populations of students of color (i.e., Black/African American, Hispanic or Latino/a, and Asian students) but did not include Native American students or multi-racial and multi-ethnic students. Further, men were underrepresented in the sample, and the study, in general, was skewed toward “traditionally” aged students. As such, study findings are limited in the transferability to the larger community of diverse students.

In addition to challenges with the study sample, the research design selected, which was reliant on the use of secondary data, represented a fourth limitation. Given this *ex-post facto* design, variables could only be operationalized in the context of available information. For example, given data constraints, student-faculty interactions were operationalized in one dimension (as opposed to academic and non-academic), “mentoring” was associated with support measures instead of actions or more explicit qualifiers rooted in the literature, and student-parent interactions were bounded by home visits. Additionally, the necessitated changes in analytical strategy (i.e., regression to Chi-square) negated the research design’s ability to be predictive.

Finally, as noted in chapter three, a noteworthy limitation of this study is the age of the data: The first wave of the NLSF instrument was deployed in 1999 with final data collection from students completed in the spring of 2003. The passage of time may have altered how study constructs and variables are conceptualized and operationalized. Further, as noted in the discussion of instrumentation in chapter three, the instrument’s age may also have implications for how language was used in the framing of NLSF questions given contemporary evolution of more socially just syntax.

### **Directions for Future Research**

While this study’s findings highlighted a number of potentially compelling points about the interplay between the backgrounds, environmental engagements, and outcomes of first-generation college students attending elite institutions, there is much more to be learned about first-generation students on a universal scale. As such, in the following section, directions for future research will be discussed via two distinct avenues: research opportunities and research process. Research opportunities will propose potential

research threads based on this study's findings and salient points of interest. The second avenue, research process, will focus on data sampling and data collection methods that might best support these research opportunities in the context of the data challenges encountered in the process of this study's execution.

### **Research opportunities.**

***Cultural capital.*** The proxies used for cultural capital development in this study were mostly beaux arts-based and focused more on students' exposure to cultural activities than the familiarizing with culture and cultural norms via study and interaction with college gatekeepers. As confirmed by Zimdars et al. (2009), participation in the beaux arts alone may not provide a complete picture of the cultural capital scenario for first-generations students. Thus, in studying cultural capital, capital-acquisition activities must be conceptualized more broadly in the context of students' intersecting identities. Further, given that this study did not reveal a link between pre-college engagement in cultural capital activities and study outcomes, future research might also examine more closely *if* and *how* cultural capital indicators matter once a first-generation student is enrolled. While much of the research shared in chapter two pointed to the deep-seated connection between first-generation students and cultural capital, Dumais and Ward (2010) suggested that both arts- and strategy-based cultural capital potentially diminished in influence once students matriculated. Further study is required to determine if this hypothesis holds for the larger first-generation student context.

***Student background characteristics, intersections, and outcomes.*** This study's findings highlighted the connection between first-generation students' race, ethnicity, income, and generational status in the U.S. and offered a sliver of insight into how the

inter-related nature of background variables could factor into student outcomes. Specifically, this study suggested a number of potentially indirect relationships between students' background variables and study outcomes via associations with shared environmental/involvement variables. Given the potency of students' characteristics, future research should focus explicitly on how background variables relate to and effect outcomes in the context of mediating environmental variables. Such research might best be accomplished using tools such as path modeling (i.e., SEM).

Additionally, in an effort to develop a deeper and more meaningful understanding of the intersecting nature of students' background characteristics, future research should consider a more deliberate study of what students' race and places of family origin mean for financial need, cultural negotiation, access, and persistence in the undergraduate process. Future research must set aside the idea that there is a "type" of first-generation student and, instead, revel in and, as Rendón (2002) suggests, validate the intersections that make each first-generation student unique. For example, future studies could explore how first-generation students who are immigrants and children of immigrants engage the educational process or navigate the cultural norms as compared to U.S.-rooted first-generation students. Additionally, forthcoming studies could examine how ethnicity, immigrant roots, and family social origins play into motivations, conceptualizations of education in context of the American Dream, and, as Massey, Mooney, Torres, Charles (2007) investigated, college choice and admission.

***Faculty and advisor interactions and support.*** While much is known about the contributions of student-faculty interactions on student outcomes, as noted in chapter two, far less is known about first-generation student-faculty interactions. In attempting to

address this literature gap, the current study focused on the relationship between interaction frequencies, as reported in the freshman year, and persistence. “Interactions,” however, were mostly centered on course-based engagements and not inclusive of broader involvements with faculty. Further, while this study also revealed that students perceived faculty and advisor support to be highly important in guiding them through their college careers, “support,” given variable configuration, was quite undefined. As such, future studies should continue to explore the contribution of faculty interactions and support to college outcomes but do so in a manner that parses interactions into academic and non-academic components, operationalizes support more appropriately (e.g., general advice-giving, emotional support), and accounts for interactions across college years. Further, given the literature that points to first-generation students’ feelings of intimidation in connecting with faculty (Longwell-Grice & Longwell-Grice, 2008; NSSE, 2007), future studies should examine this “intimidation factor” in the context of interaction and support as it might be particularly salient for low income students or students of color who might easily feel marginalized.

In addition to examining more deeply issues of first-generation student interactions with faculty and the support dynamic, future studies should also consider similar research themes with regard to academic advisors. Advisor support emerged as important in this study and, given the role of academic advisors as “connectors” (Campbell and Nutt, 2008) on campus, questions of how these individuals play a role in the success of first-generation students merits further attention. Forthcoming research should, especially, attempt to operationalize advisor support into tangible, component

parts (e.g., academic advising, emotional support, financial aid advice) so that practice can more aptly and appropriately meet the needs of first-generation students.

***Peer interactions.*** Similar to the literature base focused on first-generation student-faculty interaction, the available scholarship on first-generation students' interactions with other students is somewhat limited. While this study's findings did contribute some insight in that they highlighted both the importance and rarity of first-generation students' academic interactions with peers, little emerged with regard to students' socially-based interactions. This continued literature gap is especially concerning given the general research that points to the power of peers throughout the entire educational process (e.g., Astin, 1993; Pascarella & Terenzini, 1991, 2005). As such, future studies should examine first-generation students' interactions with peers both in the academic and social arenas and, subsequently, further unpack "co-curricular involvement" into more discernible, understandable pieces. Additionally, these inquiries should examine interactions throughout students' undergraduate experience.

With regard to peer interactions, future research should also examine how peer interactions might lead to intermediate outcomes (e.g., positive transitions, satisfaction) that, in turn, contribute to undergraduate persistence and other post-college achievements. For this type of research, a path modeling (i.e., SEM) approach might be useful. Finally, forthcoming studies should explore how changes in the patterns of first-generation student involvement (i.e., interactions as freshmen, sophomores, junior, and seniors) with other first- and non-first-generation students contribute to short- and long-term outcomes.

***Parent interactions and family support.*** As noted in chapter two, much is known about the role of parents and family during first-generation students' pre-college process,

particularly with respect to cultural capital, aspirations, and college choice. Yet, far less is known about the role of parents and family while students are enrolled and working toward degree completion. Contrary to some of the scholarship pointing to the detriments of off-campus involvements with family, this study deduced that, for the most part, interactions with parents did not compromise persistence until excessive. As such, future studies should explore the unique relationship first-generation college students have with parents and other family members during the college-going process in an effort to determine what kinds of interactions are most helpful and if/how *specific* family members matter. With regard to specific family members, Acker-Ball (2007) affirmed the special place of siblings in coaching younger, first-generation college-goers. As such, future research could specifically focus on the role of older, college-educated siblings and what types of interactions with these role models contribute to the undergraduate persistence and long-term outcomes of first-generation students.

Explorations of first-generation students and family would be particularly salient to first-generation students of color and first-generation students who might be immigrants or children of immigrants. Given that cultural patterns of familial involvement could look differently for these students than from those of White, U.S.-rooted first-generation students, future studies would enable learning that could aid colleges in supporting the first-generation student more holistically. Finally, this concept of “support” should also be explored in future work in an effort to disassemble what “support” means for first-generation students. In the context of this study, the family support variable was quite generic in nature, but future work should include additional qualifiers such as financial support, emotional support, and academic support.



***Understanding nature of student work.*** As noted earlier in this study, the research is rather mixed on the benefits and drawbacks of student employment, in general, and rather scarce with regard to first-generation students specifically. This study found that the relationship between work and persistence can be positive, if work hours are not excessive and that, alarmingly, students with the most financial need work the most. Given this combination of findings, future studies must explore further the purpose and influence of student employment for/on first-generation students, particularly given that financial fragility could mean more work, less involvement, and, as a result, compromised graduation. Additionally, future research should be careful to examine effects of work in the context of on- and off-campus employment, given the known benefit of campus employment and the stigma of “non-involvement” (Astin, 1993) attached to off-campus work. Forthcoming research on the nature of first-generation student employment is particularly important given that employment can both enrich the student experience and, unfortunately, marginalize students further.

***Living arrangements.*** The nature of living arrangements for the first-generation students in this study was uniform and campus-based and, as such, limited a true understanding of the potential relationship between students’ housing selections and undergraduate persistence. However, existing research on the positive contributions of campus-based residence hall living on first-generation student development (e.g., Inkelas et al., 2007) underscores the need to investigate further these connections. Future studies should not only explore the influences that type and nature of campus-based housing have on first-generation student outcomes, but they should also explore more fully the first-generation commuter student experience. As noted in chapter two, research on

commuter students often underscores the lack of campus connection and belonging that emerges from less enmeshment on campus. Yet, practitioners and administrators must develop meaningful ways to understand the true implications of commuting on first-generation students' outcomes and the interventions needed to foster success.

***Persistence and transfer students.*** One of the advantages of the NLSF data set was its utility in investigating students' systemic persistence and, thus, students' transfers to institutions other than the ones in which they were originally enrolled. Yet, given the reduced sample size resulting from data treatment, the researcher could not study the departure and re-enrollment rationales of the first-generation transfer students' in the study. As such, future research focused on first-generation students' persistence should examine not only single-institution persistence, but it should also examine systemic persistence and the factors that influence first-generation students' decisions to leave one college for another. Researchers might scrutinize issues pertaining to finances, campus climate, interactions with peers and faculty, racial or ethnic marginalization, and family and work obligations and their influence on first-generation students' transfer decisions. This research work might be particularly potent if conducted as a comparative analysis between the transfer decisions of first-generation and non-first-generation scholars.

Additionally, future examinations of first-generation students' persistence and transfer decisions might be most robust if pursued in the context of institutional type. While this study focused on first-generation students attending elite institutions, discussion of the explicit role played by institutional type across student outcomes was limited. As such, future researchers might explore the discrete contributions of

institutional characteristics to the first-generation experience. Such research might benefit from the use of HLM, given that the statistical approach is suited for nested data.

***Graduation educational aspirations.*** One of the original outcome variables of interest for this study was first-generation students' graduate educational aspirations. Yet, none of the input or environmental variables chosen for this study emerged as significantly associated with students' graduate educational aspirations. While, as noted in the limitations section above, this lack of relationship could be attributed to research design, this scenario could also underscore the possibility that additional variables may be at play. For example, Cruce et al. (2006) found that students' academic effort in college coursework contributed to graduate degree aspirations. As such, future research should consider a more comprehensive model for the study of factors that shape graduate educational aspirations and might include college grade point averages, college major, and competencies in college-level writing, reading, and reasoning skills. Additionally, future studies could consider college-based finances (e.g., undergraduate loan indebtedness) given that both Payne 2006 and Engle and Tinto (2008) hypothesized their saliency to the pursuit of advanced study. Finally, new research could embark on a more nuanced examination of some of the environmental variables used in this study (e.g., student-faculty interaction focused on research opportunities) in an effort to uncover more specialized factors of interest and import to graduate educational aspirations.

**Research process.** The research opportunities above are merely a modest mentioning of the study topics that could further knowledge about first-generation college students. These research threads could be pursued via a number of methodologies to include quantitative, qualitative, and mixed methods. Qualitative

inquiry, in particular, would be powerful for research questions exploring the lived experiences of first-generation students in the context of undergraduate outcomes. For example, a qualitative study on the intersections of first-generation students' multiple identities, their interplay with the concentric environments of college life, and their influence on persistence would provide a deeper understanding of the first-generation student as "person" and ensure that students' voices are heard. Complementary to qualitative methods, quantitative designs, much like the NLSF, offer researchers the opportunity to survey a broader landscape and to reach a larger number of first-generation students as well as the family, faculty, and college staff members who support them. While different, both inquiry methods are valuable to advancing knowledge about first-generation students; yet, each method also has its challenges.

Given the quantitative thrust of this study, a number of these challenges surfaced and, as such, will be included as "process"-oriented considerations for future research. These considerations flow from some of the challenges encountered by the researcher with the NLSF data set and speak to instrumentation and data collection specifically. These thoughts will be most appropriate for those researchers, in particular, who hope to create original data sets in order to study most fully first-generation students.

***Instrumentation.*** With regard to instrumentation, in order to maximize the utility and analytical versatility of data, future researchers should consider, where possible and appropriate, developing questions so that responses yield continuous rather than categorical data. Continuous data might lend itself more appropriately to parametric statistical tests and, in addition, be consolidated into categories for non-parametric analysis; categorical data does not offer this same flexibility and can limit research

designs. Additionally, with regard to instrumentation, future researchers considering longitudinal studies should ensure that questions developed to assess the same student conditions or attributes from year to year are treated in a repeated measures fashion and, as such, phrased identically offering identical response choices. While repeated measures may be vulnerable to respondent conditioning, consistent questioning will enable researchers to benefit from the fact that longitudinal data are uniquely qualified to shed light on issues of causality, time-related changes, and gross changes (Lynn, 2009).

***Sampling.*** In order to perform effectively a number of statistical operations that are sensitive to data separation issues, such as those attempted in this study (e.g., logistic or multinomial regression), researchers particularly concerned with first-generation outcomes must ensure that samples are large enough and that outcomes are varied enough to accommodate these analyses. Both sample size and outcome variance could be managed by reconciling sample needs with variables of interest and, perhaps, making first-generation students the sole study population. Additionally, sample size and outcome variance issues could be remedied by a more careful approach to data collection.

***Data collection.*** The NLSF model of longitudinal inquiry offered a broad perspective on students' pre-college and college life cycles and, as such, may be a desirable method for future researchers. However, researchers should develop a plan for how non-responses and missing data will be managed as these issues may substantially compromise sample sizes and analytical options. Given the extensive time investment with longitudinal data collection, particularly in the context of face-to-face and telephone interviews, researchers should be particularly diligent in collecting data from every student and, even in cases of response refusal, clearly note appropriate codes. Missing

data, blanks, and ambiguously interpretable responses compromise the wholesomeness of the data set, constrain statistical options, and, potentially, lead to unsatisfying analysis.

The suggestions for researchers above with regard to instrumentation, sampling and data collection are offered in an effort to advance future research in a meaningful way. The objective for all educators should be to support first-generation college students as best as possible as they traverse unique paths to, through, and beyond college—good research grounded in strong methods is a stepping stone toward this end.

### **Study Conclusion**

In some respects, first-generation students can be “invisible” in the academy given that “first-generationism” has no distinguishing attributes that represent both the triumphs and burdens of this pioneering role. Yet, it is this susceptibility to roam the college corridors unseen that should catalyze action within the higher education community, first-generation families, and legislative halls across the country to identify factors that contribute to the undergraduate persistence as well as the multi-dimensional long-term successes of first-generation students.

In an effort to identify some of the factors related to success and college outcomes for first-generation students, this study examined these students’ unique backgrounds and the concentric environments in which these students engage. While findings varied, were contextualized by students’ enrollment at elite institutions, and oscillated between uplifting and challenging, they underscored the desperate need for continued inquiry into the experiences of first-generation students and a renewed commitment to helping these students achieve their unique American Dream.

This study's discussion began with consideration of the American Dream, its connection to political goals for American education and global competitiveness, and the numerous ways in which scholars and musers have conceptualized its core meaning. Yet, rather than focusing broadly on the common recipe for the American Dream, perhaps practitioners, researchers, administrators, and policymakers should begin to contemplate the shape and face of the unique American Dream held by first-generation students. Max Beerbohm, a British poet, once shared that, "We must stop talking about the American Dream and start listening to the dreams of Americans." Given this wisdom, the great potential in each multi-faceted first-generation student, and the blueprints in hand for improved practice in the pursuit of critical outcomes, it is time for all those invested to listen, to *actually* hear, and to act to serve these special scholars.

## Appendix A

Table A1

*Supplemental Institutional Characteristics of 28 Selective Colleges and Universities Sampled in the National Longitudinal Survey of Freshmen (as retrieved for 1999)*

Institution	U.S. City, State	Control and Affiliation	Carnegie Classification	Total Under-graduates	Endowment Assets (\$000s)
Barnard College	New York, NY	Private-nonprofit-women's college	BA liberal arts college I	2318	153,662
Bryn Mawr College	Bryn Mawr, PA	Private-nonprofit	BA liberal arts college I	1316	426,499
Columbia University	New York, NY	Private-nonprofit	Research university I	7763	3,636,621
Denison University	Granville, OH	Private-nonprofit	BA liberal arts college I	2089	355,116
Emory University	Atlanta, GA	Private- nonprofit-religiously affiliated (United Methodist)	Research university I	6215	4,475,755
Georgetown University	Washington, DC	Private- nonprofit-religiously affiliated (Roman Catholic)	Research university I	6361	684,193
Howard University	Washington, DC	Private-nonprofit-HBCU	Research university I	5986	291,468
Kenyon College	Gambier, OH	Private-nonprofit	BA liberal arts college I	1588	110,521
Miami University	Oxford, OH	Public	Doctoral university I	15288	201,080
Northwestern University	Evanston, IL	Private-nonprofit	Research university I	9477	2,634,850
Oberlin College	Oberlin, OH	Private-nonprofit	BA liberal arts college I	2951	508,490
Pennsylvania State University	University Park, PA	Public	Research university I	34505	792,185



Institution	U.S. City, State	Control and Affiliation	Carnegie Classification	Total Under-graduates	Endowment Assets (\$000s)
Princeton University	Princeton, NJ	Private-nonprofit	Research university I	4672	6,469,200
Rice University	Houston, TX	Private-nonprofit	Research university II	2785	2,936,622
Smith College	Northampton, MA	Private-nonprofit-women's college	BA liberal arts college I	2665	884,782
Stanford University	Palo Alto, CA	Private-nonprofit	Research university I	7784	6,005,211
Swarthmore College	Swarthmore, PA	Private-nonprofit	BA liberal arts college I	1467	905,680
Tufts University	Sommerville, MA	Private-nonprofit	Research university I	4977	464,107
Tulane University	New Orleans, LA	Private-nonprofit	Research university I	7151	548,305
University of California-Berkeley	Berkeley, CA	Public	Research university I	22593	4,315,219
University of Michigan	Ann Arbor, MI	Public	Research university I	24493	2,525,612
University of North Carolina	Chapel, Hill, NC	Public	Research university I	15434	925,746
University of Notre Dame	South Bend, IN	Private-nonprofit-religiously affiliated (Roman Catholic)	Research university II	8014	1,984,256
University of Pennsylvania	Philadelphia, PA	Private-nonprofit	Research university I	11814	3,281,342
Washington University	St. Louis, MO	Private-nonprofit	Research university I	6509	3,761,686
Wesleyan University	Middletown, CT	Private-nonprofit	BA liberal arts college I	2758	530,323
Williams College	Williamstown, MA	Private-nonprofit	BA liberal arts college I	2113	923,243
Yale University	New Haven, CT	Private-nonprofit	Research university I	5413	7,197,900

*Note.* All data extracted from the U.S. Department of Education's National Center for Education Statistics' Integrated Postsecondary Education Data System (U.S. Department of Education, 1999) with the exception of endowments assets. Endowment assets were retrieved from excerpts of the National Association of College and University Business Officers' (NACUBO) Total Market Value of Endowments Study (NACUBO, 1999).

# **Appendix B**

## **SURVEY OF COLLEGE LIFE AND EXPERIENCE**

### **FIRST WAVE INSTRUMENT**

**May 1998**

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University of Pennsylvania**

**Camille Z. Charles  
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**Principal Investigators**

**Supported by:**

**The Andrew W. Mellon Foundation  
140 E. 62<sup>nd</sup> Street  
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## GRADE SCHOOL ENVIRONMENT

To start out, I'd like you to think back to when you were in the first grade. You were probably 6 years old at the time, but you may have been as young as 5 or as old as 7. I'd like to find out a little about the family, neighborhood, and school environment that you experienced as a first grader, or roughly at the age of six.

1. Could you please tell me who was living with you at that time? Include *everyone* who lived in your home or apartment, even if they weren't a relative and even if they didn't spend the entire year with you. Begin with your parent, guardian, or closest relative.

[illegible]

2. When you were in first grade (about six years old), how often did your parents, older siblings, or other adults do the following:

	Never	Rarely	Sometimes	Often	Often	Always
Read to you?						
Check if you'd done your homework?						
Participate in a Parent-Teacher Association?						
Help you with your homework?						
Reward you for good grades?						
Punish you for bad grades?						
Punish you for disobedience?						
Limit your TV watching?						
Ask you to do household chores?						
Take you to an art museum?						

Take you to science center or museum?  
 Take you to a library?  
 Take you to the zoo or aquarium?  
 Take you traveling within the U.S.?  
 Take you on foreign trips?

3. As a first grader, did you attend a public school, a private religious school, or a private nonreligious school? If you attended more than one school, consider the one where you spent the most time.

( ) Public ( ) Private Religious ( ) Private Nonreligious ( ) Other (specify)

4. Thinking back to the ethnic and racial composition of your grade school at age six, I'd like you to estimate the percentage of African Americans, Latinos, and Asians among first graders in your school:

Estimated Percentage of African Americans or Blacks: \_\_\_\_\_  
 Estimated Percentage of Latinos or Hispanics: \_\_\_\_\_  
 Estimated Percentage of Asians: \_\_\_\_\_

Were other nonwhite racial or ethnic minorities present? Yes / No

If yes, estimated percentage: \_\_\_\_\_

1. As a grade school student, say between ages 6 and 10, do you remember seeing any of the following in your school?

Students fighting?	Yes / No
Students smoking?	Yes / No
Students cutting class?	Yes / No
Students cutting school?	Yes / No
Verbal abuse of teachers by students?	Yes / No
Physical violence directed at teachers by students?	Yes / No
Vandalism of school or personal property?	Yes / No
Theft of school or personal property?	Yes / No
Students consuming alcohol?	Yes / No
Students taking illegal drugs?	Yes / No
Students with knives?	Yes / No
Students with guns?	Yes / No

2. Thinking back to the area where you lived at age 6, I'd like you to estimate the percentage of African Americans, Latinos, and Asians in your neighborhood, say, within a three-block radius of your house or apartment.

Estimated Percentage of African Americans or Blacks: \_\_\_\_\_  
 Estimated Percentage of Latinos or Hispanics: \_\_\_\_\_  
 Estimated Percentage of Asians: \_\_\_\_\_

Were other nonwhite racial or ethnic minorities present? Yes / No

If yes, estimated percentage: \_\_\_\_\_

3. During the summer after your first grade year, which of the following activities did you undertake (indicate all that apply):

Summer school	Yes / No
Recreational Day Camp	Yes / No
Educational Day Camp	Yes / No
Sleep-away Camp	Yes / No
Organized Day Care	Yes / No
Family Vacation	Yes / No
Academic Enrichment Program (Specify)	Yes / No

1. As a child in this neighborhood, before the age of 10, do you remember any of the following?

Homeless people on the street?	Yes / No
Prostitutes on the street?	Yes / No
Gang members hanging out on the street?	Yes / No
Drug paraphernalia on the street?	Yes / No
People selling illegal drugs in public?	Yes / No
People using illegal drugs in public?	Yes / No
People drinking or drunk in public?	Yes / No
Physical violence in public?	Yes / No
The sound of gunshots?	Yes / No

#### MIDDLE SCHOOL ENVIRONMENT

Now I'd like you to think back to when you were in middle school or junior high, roughly at age 13. I'd like to find out something about the family, school, and neighborhood conditions you experienced as a middle school student, or wherever you were at the age of about 13 years.

- [illegible]

- |  | Never | Rarely | Sometimes | Often | Very Often<br>Always |
|--|-------|--------|-----------|-------|----------------------|
| Check if you'd done your homework?           |       |        |           |       |                      |
| Help you with your homework?                 |       |        |           |       |                      |
| Participate in a Parent-Teacher Association? |       |        |           |       |                      |
| Talk with your friends?                      |       |        |           |       |                      |
| Reward you for good grades?                  |       |        |           |       |                      |
| Punish you for bad grades?                   |       |        |           |       |                      |
| Punish you for disobedience?                 |       |        |           |       |                      |
| Limit your TV watching?                      |       |        |           |       |                      |
| Limit your playing of video games?           |       |        |           |       |                      |
| Limit the time you spent with friends?       |       |        |           |       |                      |
| Set an hour to return home at night?         |       |        |           |       |                      |
| Ask you to do household chores?              |       |        |           |       |                      |
| Take you to an art museum?                   |       |        |           |       |                      |
| Take you to a science center or museum?      |       |        |           |       |                      |
| Take you to a library?                       |       |        |           |       |                      |

Take you to plays or concerts?  
 Take you to sporting events?  
 Take you traveling within the U.S.?  
 Take you on foreign trips?

3. About how often did you participate in the following extracurricular activities when you were roughly 13 years old:

Very  
 Never Rarely Sometimes Often Often

Organized sports at school?  
 Organized sports outside of school?  
 Dance lessons?  
 Music lessons?  
 Art lessons?  
 Scouting activities?  
 4H Club?

4. At age 13 did you attend a public school, a private religious school, or a private nonreligious school? If you attended more than one school, consider the one where you spent the most time.

( ) Public ( ) Private Religious ( ) Private Nonreligious ( ) Other (specify)

5. Thinking back to the ethnic and racial composition of your school at age 13, I'd like you to estimate the percentage of African Americans, Latinos, and Asians among students in the student body:

Estimated Percentage of African Americans or Blacks: \_\_\_\_\_  
 Estimated Percentage of Latinos or Hispanics: \_\_\_\_\_  
 Estimated Percentage of Asians: \_\_\_\_\_

Were other nonwhite racial or ethnic minorities present? Yes / No

If yes, estimated percentage: \_\_\_\_\_

4. As a middle school student, say roughly between the ages of 12 and 14, how often do you recall witnessing the following behaviors in school, that is on school property during school hours:

Very  
 Never Rarely Sometimes Often Often

Students fighting?  
 Students smoking?  
 Students kissing or "making out?"

Students being late for class?  
 Students cutting class?  
 Students cutting school?  
 Verbal abuse of teachers by students?  
 Physical violence directed at teachers by students?  
 Vandalism of school or personal property?  
 Theft of school or personal property?  
 Students consuming alcohol?  
 Students taking illegal drugs?  
 Students carrying knives?  
 Students carrying guns?  
 Robbery of students by other students?

5. During first summer after your 13<sup>th</sup> birthday, which of the following activities did you undertake (indicate all that apply):

Summer school	Yes / No
Recreational Day Camp	Yes / No
Educational Day Camp	Yes / No
Sleep-away Camp	Yes / No
Vacation	Yes / No
A summer job	Yes / No

6. Thinking back to the area where you lived at age 13, I'd like you to estimate the percentage of African Americans, Latinos, and Asians in your neighborhood, say, within a three-block radius of your house or apartment.

Estimated Percentage of African Americans or Blacks: \_\_\_\_\_  
 Estimated Percentage of Latinos or Hispanics: \_\_\_\_\_  
 Estimated Percentage of Asians: \_\_\_\_\_

Were other nonwhite racial or ethnic minorities present? Yes / No

If yes, estimated percentage: \_\_\_\_\_

2. As child aged 12-14 living in this neighborhood, how often do you recall seeing the following:

	Never	Rarely	Sometimes	Often	Very Often
Homeless people on the street?					
Prostitutes on the street?					
Gang members hanging out on the street?					
Drug paraphernalia on the street?					
People selling illegal drugs in public?					



People using illegal drugs in public?  
People drinking or drunk in public?  
Physical violence in public?  
The sound of gunshots?

## HIGH SCHOOL EXPERIENCES: HOME

Finally, I'd like to ask you about last year, when you were a senior in high school, to learn something about the family, school, and neighborhood conditions you experienced at that point in your life, when you were probably 17 or 18 years old.

1. Could you please tell me who was living with you at that time? Once again, include *everyone* who lived in your home or apartment during your senior year of high school, even if they weren't a relative and even if they didn't spend the entire year with you. Begin with your parent, guardian, or closest relative.

[illegible]

2. In your senior year, how often did your parents or other adults in your household do the following:

Never Rarely Sometimes Often Very Often Always

Check if you'd done your homework?  
Meet personally with your teachers?  
Help you with your homework?

Talk with your friends?  
 Reward you for good grades?  
 Punish you for bad grades?  
 Punish you for disobedience?  
 Limit your TV watching?  
 Limit your playing of video games?  
 Limit the time you spent with friends?  
 Set an hour to return home at night?  
 Ask you to do household chores?  
 Take you to museums?  
 Take you to plays or concerts?  
 Take you to sporting events?  
 Take you traveling in the U.S.?  
 Take you on foreign trips?

3. About how often did you participate in the following extracurricular activities when you were roughly 17 or 18 years old:

Never Rarely Sometimes Often Very Often

Organized sports at school?  
 Organized sports outside of school?  
 Drama or theater activities?  
 School band or orchestra?  
 School debate?  
 School cheerleading?  
 Pep club or related activities?  
 Student government?  
 Dance lessons?  
 Private music lessons?  
 Private art lessons?  
 Scouting activities?  
 4H Club?  
 Volunteer work in community?

4. How often did you, yourself, make use of the following items when you were a senior in high school?

Never Rarely Sometimes Often Very Often Didn't Have in home

A daily newspaper?  
 A Sunday newspaper?  
 A weekly news magazine?  
 An encyclopedia?  
 A dictionary?  
 An atlas?

A typewriter or wordprocessor?  
 A computer?  
 The internet?  
 Pocket calculator?  
 Piano?  
 Other musical instrument?

5. How often did your mother or father make use of the following items when you were a senior in high school?

Never Rarely Sometimes Often Very Often Didn't Have in Home

A daily newspaper?  
 A Sunday newspaper?  
 A weekly news magazine?  
 An encyclopedia?  
 A dictionary?  
 An atlas?  
 A typewriter or wordprocessor?  
 A computer?  
 The internet?  
 Pocket calculator?  
 Piano?  
 Other musical instrument?

6. What is the latest you were allowed to stay out on a school night?

Approximate Time: \_\_\_\_\_

7. What is the latest you were allowed to stay out on a weekend night?

Approximate Time: \_\_\_\_\_

8. Did you have a room of your own in your senior year? Yes / No

9. Did you have a specific place where you could study without being disturbed? Yes / No

10. By the time of your senior year, how many books did your household contain?

None  
 1-25  
 26-50  
 51-75  
 76-100  
 >100

11. How many televisions did your household contain? Number: \_\_\_\_\_

12. How many VCR's did your household contain?

Number: \_\_\_\_\_

13. During a typical seven-day week as a high school senior, please estimate the following about **yourself** (estimate all that apply):

The number of hours you watched TV or videos  
The number of hours you played video games  
The number of hours you studied or did homework  
The number of hours you read for information or pleasure  
The number of hours you listened to recorded music  
The number of hours you did chores or housework  
The number of hours you looked after brothers or sisters at home  
The number of hours you were employed outside the house  
The number of hours spent socializing with friends outside of school

30. During a typical seven-day week as a high school senior, please estimate the following about **your mother** (estimate all that apply):

The number of hours she watched TV or videos  
The number of hours she read for information or pleasure  
The number of hours she listened to recorded music  
The number of hours she did chores or housework  
The number of hours she was employed outside the home

31. During a typical seven-day week as a high school senior, please estimate the following about **your father or mother's partner** (estimate all that apply):

The number of hours he watched TV or videos  
The number of hours he read for information or pleasure  
The number of hours he listened to recorded music  
The number of hours he did chores or housework  
The number of hours he was employed outside the home  
No father or partner in home

32. Please tell me how much you agree or disagree with the following statements about how your parents or guardians treated you during your senior year in high school:

Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree
-------------------	-------------------	----------------------	----------------------

I could count on my parents to help me out with problems..  
My parents thought you shouldn't argue with adults.  
My parents pushed me to do my best.  
My parents thought you should give in on arguments rather than make people angry.  
My parents pushed me to think independently.

When I got a poor grade in school, my parents made life miserable.  
 My parents helped me with schoolwork whenever I didn't understand.  
 My parents thought they were always right and that I shouldn't question them.  
 When my parents wanted me to do something, they always explained why.  
 Whenever I argued with my parents, they said "you'll understand when you grow up."  
 Whenever I got a poor grade in school, my parents encouraged me to try harder.  
 My parents knew who my friends were.  
 My parents acted cold and unfriendly if I did something they didn't like.  
 My parents spent a lot of time just talking with me.  
 If I got a poor grade in school, my parents made me feel guilty.  
 My family did fun things together.  
 My parents wouldn't let me do things with them whenever I did something they didn't like.

### HIGH SCHOOL ENVIRONMENT: SCHOOL

33. What was the name and address the last high school you attended?  
 (Get as specific address as possible, but at least name, city, and state).
1. In your senior year, did you attend a public school, a private religious school, or a private nonreligious school? If you attended more than one school, consider the one where you spent the most time.
- ( ) Public ( ) Private Religious ( ) Private Nonreligious ( ) Other (specify)
36. Thinking back to the ethnic and racial composition of your high school, I'd like you to estimate the percentage of African Americans, Latinos, and Asians in the student body:
- Estimated Percentage of African Americans or Blacks: \_\_\_\_\_  
 Estimated Percentage of Latinos or Hispanics: \_\_\_\_\_  
 Estimated Percentage of Asians: \_\_\_\_\_
- Were other nonwhite racial or ethnic minorities present? Yes / No
- If yes, estimated percentage: \_\_\_\_\_
37. In order to get an idea of what your high school was like, please tell us which of the following it contained during your senior year:
- A swimming pool?  
 Tennis courts?  
 A track?  
 An indoor gym?  
 A weight room  
 A library?

TV or radio studio?  
 A foreign language lab?  
 Computers for student use?  
 A theater for dramatic productions  
 Non-teaching guidance counselors?  
 A school psychologist?  
 An orchestra or band rehearsal room?  
 Organized visits from college recruiters?  
 Uniformed security officers?  
 Metal detectors at school entrances?

1. As a high school student, how often do you recall witnessing the following in your school, that is on school property during school hours:

Never   Rarely   Sometimes   Often   Very Often

Students fighting?  
 Students smoking?  
 Students being late for class?  
 Students cutting class?  
 Students cutting school?  
 Verbal abuse of teachers by students?  
 Physical violence directed at teachers by students?  
 Vandalism of school or personal property?  
 Graffiti on school property?  
 Theft of school or personal property?  
 Gang activity?  
 Students consuming alcohol?  
 Students taking illegal drugs?  
 Students carrying knives?  
 Students carrying guns?  
 Robbery of students by other students?

2. By the beginning of the senior year in high school, what percentage of male students in your school would you say had engaged in sexual intercourse, at least once?
3. By the beginning of the senior year in high school, what percentage of female students in your school would you say had engaged in sexual intercourse, at least once?
4. By the beginning of your senior year, had you engaged in sexual intercourse at least once?

5. In high school, how much course work did you take in each of the following subjects--  
none, one half year, one year, one and one half years, two years, or more than two years?

	None	½ Year	1 Year	1½ Year	2+Years	<u>Advanced Placement</u> Took?	Passed?
<b>Mathematics:</b>							
Algebra							
Geometry							
Trigonometry							
Calculus							
General Mathematics							
<b>Natural Sciences:</b>							
Biology							
Chemistry							
Physics							
Computer Science							
Earth Science or Geology							
Other or General Sciences:							
<b>Social Studies:</b>							
U.S. History							
World History							
Economics							
Business							
Government, Politics, or Civics							
Sociology							
Psychology							
<b>Arts and Humanities:</b>							
English Language or Literature							
Foreign Language or Literature							
Religious Studies or Philosophy							
Music							
Drama							
Art							
<b>Life Skills:</b>							
Typing							
Computing							
Wood or metal shop							
Auto shop							
Home economics							



- Health  
Sex education
6. For each of the following subjects, did you get mostly A's, mostly B's, mostly C's, mostly D's, or mostly grades below D in your high school years?
- |                   | Mostly<br>A's | Mostly<br>B's | Mostly<br>C's | Mostly<br>D's | Mostly<br>Below D | Not<br>Applicable |
|-------------------|---------------|---------------|---------------|---------------|-------------------|-------------------|
| English           |               |               |               |               |                   |                   |
| History           |               |               |               |               |                   |                   |
| Mathematics       |               |               |               |               |                   |                   |
| Natural Sciences  |               |               |               |               |                   |                   |
| Social Studies    |               |               |               |               |                   |                   |
| Foreign Languages |               |               |               |               |                   |                   |
7. Measuring the degree of difficulty on a scale of 0 to 100, where 0 is not difficult at all and 100 is extremely difficult, how hard were each of the following subjects for you?
- 0 Not Difficult at All .....100 Extremely Difficult
- |                   |  |
|-------------------|--|
| English           |  |
| History           |  |
| Mathematics       |  |
| Natural Sciences  |  |
| Social Studies    |  |
| Foreign Languages |  |

#### HIGH SCHOOL ENVIRONMENT: PEERS

8. In your high school, do you think your friends and acquaintances viewed the following behaviors as very uncool, somewhat uncool, neither cool nor uncool, somewhat cool, or very cool, where "cool" refers to behavior that is respected or admired by students?
- |  | Very<br>Uncool | Somewhat<br>Uncool | Neither<br>Cool nor<br>Uncool | Somewhat<br>Cool | Very<br>Cool |
|--|----------------|--------------------|-------------------------------|------------------|--------------|
| Studying hard outside of class?                |                |                    |                               |                  |              |
| Asking challenging questions in class?         |                |                    |                               |                  |              |
| Volunteering information in class?             |                |                    |                               |                  |              |
| Answering teachers' questions in class?        |                |                    |                               |                  |              |
| Solving problems using new and original ideas? |                |                    |                               |                  |              |
| Helping other students with their homework?    |                |                    |                               |                  |              |
| Getting good grades in difficult subjects?     |                |                    |                               |                  |              |
| Planning to go to college?                     |                |                    |                               |                  |              |

9. Among the friends you hung out with in your senior year of high school, how important was it to:

Not at all Important	A little Important	Somewhat Important	Very Important
-------------------------	-----------------------	-----------------------	-------------------

Attend classes regularly  
Study hard  
Play sports  
Get good grades  
Be popular or well-liked  
Finish high school  
Go to college  
Have a steady boyfriend or girlfriend  
Be willing to party and get wild  
Participate in religious activities  
Do community or volunteer work  
Hold a steady job

10. To what extent do you agree with the following statements about your experiences in high school:

Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree
-------------------	-------------------	----------------------	----------------------

I acted and thought like most people my age  
I hung out where most people my age went  
I felt comfortable around other people my age  
I valued the same things as other students

11. To what extent do you agree with the following statements:

Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree
-------------------	-------------------	----------------------	----------------------

Doing well in school helps you later in life  
I feel my future is limited  
What you are taught in school is pretty useless once you graduate  
There are better things to do than spend my time on school work  
Trying hard in school is a waste of time

12. Altogether, by the time you, yourself had graduated, how many of your close friends from high school had:

None	Some	Most	All
------	------	------	-----

Dropped out without graduating?  
Used illegal drugs at least once?  
Got drunk on alcohol at least once?

Had sexual intercourse at least once?

13. I want you now to think of your ten closest friends in your senior year of high school. How many were:

Black?  
Latino?  
Asian?  
White?  
Other?

14. Please think of *your very best friend* during your senior year of high school. To what extent are the following statements true about this person:

	Very Untrue	Somewhat True	Very True
Gets good grades			
Is interested in school			
Studies hard			
Attends classes regularly			
Plans to go to college			
Is popular with others			
Plays sports			
Reads a lot			
Watches TV a lot			
Has had sexual intercourse			
Takes illegal drugs			
Gets drunk on alcohol			

15. Do what extent do you think the following characteristics were true of you, yourself, as a senior in high school:

	Very Untrue	Somewhat True	Very True
Socially popular?			
Good athlete?			
Good student?			
Class leader?			
Trouble maker?			
Class clown?			
Politically active?			

16. Thinking of the high school you attended in your senior year, please rate the quality of the following:

	Poor	Fair	Good	Excellent	Outstanding	Didn't Have
Buildings						
Classrooms						
Audio-visual equipment						
Library						
Computing equipment						
Teacher interest						
Teacher preparedness						
Strictness of discipline						
Fairness of discipline						
School spirit						
Overall quality of school						
School's reputation in community						

17. How often did you find yourself engaging in the following behaviors as a senior in high school?

	Never	Rarely	Sometimes	Often	Very Often
Not telling my friends when I got good grades					
Acting less intelligent than I really was					
Worrying about what others thought of me					
Doing things so that others would like me					
Worrying about being called a "nerd" or "braniac"					

18. To what extent did your high school teachers encourage independent and critical thinking?

Never Rarely Sometimes Often Always

19. On a scale of 0 to 100, how self-conscious were you about how black students perceived you, with 0 meaning you were not self-conscious at all and 100 meaning that you were extremely sensitive to what they thought?

0 Not conscious at all ..... 100 Extremely sensitive

20. How self-conscious were you about the way that white students perceived you, with 0 meaning you were not conscious at all and 100 meaning that you were extremely sensitive to what they thought?

0 Not conscious at all ..... 100 Extremely sensitive

21. How self-conscious were you about the way that Latino students perceived you?  
0 Not conscious at all ..... 100 Extremely sensitive
22. How about the way that Asian students perceived you?  
0 Not conscious at all ..... 100 Extremely sensitive
23. Finally, how self-conscious were you about the way that your teachers perceived you?  
0 Not conscious at all ..... 100 Extremely sensitive

#### **HIGH SCHOOL ENVIRONMENT: NEIGHBORHOOD AND WORK**

24. What was the complete address of the place where you lived in the month before you graduated from high school?
25. Now I'd Thinking back to the area where you lived as a high school senior, I'd like you to estimate the percentage of African Americans, Latinos, and Asians in your neighborhood, say, within a three-block radius of your house or apartment.

Estimated Percentage of African Americans or Blacks: \_\_\_\_\_  
 Estimated Percentage of Latinos or Hispanics: \_\_\_\_\_  
 Estimated Percentage of Asians: \_\_\_\_\_

Were other nonwhite racial or ethnic minorities present? Yes / No

If yes, estimated percentage: \_\_\_\_\_

63. While your were living in this neighborhood as a high school senior, how often do you recall seeing the following:

	Never	Rarely	Sometimes	Often	Very Often
Homeless people on the street?					
Prostitutes on the street?					
Drug paraphernalia on the street?					
People selling illegal drugs in public?					
People using illegal drugs in public?					
People drinking or drunk in public?					
Graffiti on neighborhood businesses?					
Graffiti on neighborhood homes?					
Gang members hanging out on the street?					
Physical violence in public?					

The sound of gunshots?  
Someone stabbed by a knife?  
Someone shot by a gun?  
Someone getting mugged?

64. In your senior year in high school, did you ever get paid for doing work outside your own home?

If yes, what was it that you usually did?

Odd jobs  
House cleaning  
Baby sitting  
Lawn or garden work  
Fast food worker  
Waiter or waitress  
Store clerk or salesperson  
Factory worker  
Manual laborer  
Construction work  
Office of clerical worker  
Hospital or health worker  
Mechanic  
Other: Specify

65. During a typical week in the Fall of your senior year, how many hours did you work?
66. During the summer after your graduation, about how many weeks did you spend in each of the following activities:
- Working at a summer job?  
Pre-college program?  
Summer school?  
Day camp?  
Sleep-away camp?  
Vacation or travel?  
Volunteer work in community?  
Other (specify)?
67. On the last thing you did for pay before coming to college, either during the school year or during the summer, how much did you earn per hour?

#### **THINKING ABOUT COLLEGE**

68. On a scale of 0 to 100, how important were the following considerations in choosing where to attend college, where 0 indicates it was extremely unimportant and 100 indicates it was extremely important:

Extremely                      Extremely  
0 unimportant ..... 100 important

Cost?  
 Availability of financial aid?  
 Availability of athletic scholarship?  
 Sports opportunities?  
 Availability of academic support programs?  
 Recruitment efforts made by school?  
 Availability of specific courses?  
 Overall academic reputation?  
 Overall athletic reputation?  
 Overall social prestige?  
 School social life?  
 Availability of specialized or "theme" dorms?  
 Distance to home?  
 Religious environment?  
 Security and safety on campus?  
 Job placement record?  
 Graduate school placement record?  
 Professional school placement record?  
 Admissions standards?  
 Enough members of my own group to feel comfortable?  
 Enough members of my group surrounding community?  
 Size/Number of students?  
 Parents' connection to school?  
 Parents' opinion of school?  
 Friendship with students or alumni?

69. Which of the following statements best describes your current aspirations?

I plan to take college one year at a time and see how I do  
 I plan to graduate from college and then consider my options  
 I plan to graduate from college and go to graduate or professional school

70. Can you estimate the probability that you will complete each of the following educational milestones. That is, on a scale from 0 to 100, what is the likelihood that you will:

Finish one year of college?  
 Finish two years of college?  
 Graduate from college?  
 Go on for more education after college?



Complete a graduate or professional degree?

71. Have you already chosen a major? If yes, what? \_\_\_\_\_

#### GROUP STEREOTYPES

Now I have some questions about different racial and ethnic groups in our society. I want you to rate each group on a 0 to 100-point scale, where 0 means that no one in the group displays the characteristic or trait in question and 100 means that everyone does. A score of 50 would mean that half do and half don't share the trait.

72. Suppose, for example, that I ask you to judge how poor or rich a group is, where 0 indicates that all are poor and 100 indicates that all are rich. A score of 50 means that the group is half rich and half poor. In the United States, how rich would you say:

0 poor ..... 100 rich

Whites are?  
Blacks are?  
Latinos are?  
Asians are?

1. The second set of characteristics ask if people in the group tend to be lazy or if they tend to be hardworking. On this scale, where would you generally place:

0 lazy ..... 100 hard-working

Whites?  
Blacks?  
Latinos?  
Asians?

2. The next set of questions asks if people in each group tend to be peaceful or prone to violence. On this scale, where would you generally place:.

0 peaceful .....100 prone to violence

Whites?  
Blacks?  
Latinos?  
Asians?

3. Do you think people in these groups tend to be unintelligent or intelligent? How about:

0 unintelligent .....100 intelligent

Whites?

Blacks?  
Latinos?  
Asians?

4. Do people in each group tend to be self-supporting, or do you think they prefer to live off welfare? In general, how would you rate:

0 live off welfare ..... 100 self-supporting

Whites?  
Blacks?  
Latinos?  
Asians?

5. Next for each group I want to know if you think they tend to be hard or easy to get along with. On this scale, where would you place:

0 hard to get along with ..... 100 easy to get along with

Whites?  
Blacks?  
Latinos?  
Asians?

6. In general, how dishonest or honest are the members of each group? How would you rate:

0 dishonest ..... 100 honest

Whites?  
Blacks?  
Latinos?  
Asians?

7. How the characteristic of persistence, where people either give up easily or stick with a task until the end? In general, how persistent are:

0 give up easily ..... 100 stick with it

Whites?  
Blacks?  
Latinos?  
Asians?

8. Finally, think of a scale of discrimination. For each group I want to know if you think its members tend to treat members of other groups equally, or whether they tend to discriminate against people who aren't in their group. On this scale, how would you rate:

0 treat equally ..... 100 discriminate against others

Whites?  
Blacks?  
Latinos?  
Asians?

#### PERCEPTIONS OF SOCIAL DISTANCE

In the next set of questions, I want to see how you feel about various facets of interaction with different groups to get a sense of how close or distant you feel from them.

9. Would you personally prefer to live in a neighborhood with all blacks, mostly blacks, about half blacks, mostly whites, or almost all whites?

What percentage of blacks would you most prefer in your neighborhood?

What is the highest percentage of blacks you would be willing to have in your neighborhood?

82. What about Latinos? Would you personally prefer to live in a neighborhood with all Latinos, mostly Latinos, about half Latinos, mostly whites, or almost all whites?

What percentage of Latinos would you most prefer in your neighborhood?

What is the highest percentage of Latinos you would be willing to have in your neighborhood?

1. And now Asians—would you personally prefer to live in a neighborhood with all Asians, mostly Asians, about half Asians, mostly whites, or almost all whites?

What percentage of Asians would you most prefer in your neighborhood?

What is the highest percentage of Asians you would be willing to have in your neighborhood?

1. Now consider schools. If you had children, would you personally prefer to send your children to a school with all blacks, mostly blacks, about half blacks, mostly whites or almost all whites?

What percentage of blacks would you prefer in your children's school?

What is the highest black percentage you would be willing to accept in your children's school?

2. What about Latinos. If you had children, would you personally prefer to send your children to a school with all Latinos, mostly Latinos, about half Latinos, mostly whites or almost all whites?

What percentage of Latinos would you most prefer in your children's school?  
What is the highest percentage of Latinos you would be willing to accept in your children's school?

3. And finally again Asians—if you had children, would you personally prefer to send your children to a school with all Asians, mostly Asians, about half Asians, mostly whites or almost all whites?

What percentage of Asians would you most prefer in your children's school?

What is the highest percentage of Asians you would be willing to accept in your children's school?

87. Now I'm going to read you a list of different categories of African Americans. For each category, tell me how close you feel to the people in terms of your ideas and feelings about things.

0 Very Distant ..... 100 Very Close

Religious, church-going blacks  
Young black men  
Young black women  
Middle class blacks  
Rich blacks  
Black elected officials  
Black business owners  
Black sports figures  
Black newscasters  
Black doctors, lawyers and other professionals  
Blacks with African first names  
Black rappers and hip-hop artists  
Blacks who benefit from affirmative action

1. Now we'll repeat the exercise for different categories of Hispanics or Latinos. For each category, tell me how close you feel to the people in terms of your ideas and feelings about things.

0 Very Distant ..... 100 Very Close

Religious, church-going Latinos  
Young Latino men  
Young Latina women  
Middle class Latinos  
Rich Latinos

Latino elected officials  
 Latino business owners  
 Latino sports figures  
 Latino newscasters  
 Latino doctors, lawyers and other professionals  
 Latinos with Spanish first names  
 Latino rappers and hip-hop artists  
 Latinos who benefit from affirmative action

1. For the sake of completeness, we'll also consider different categories of Asians. For each category, on a scale of 0 to 100 tell me how close you feel to the people in terms of your ideas and feelings about things.

0 Very Distant ..... 100 Very Close

Religious, church-going Asians  
 Young Asian men  
 Young Asian women  
 Middle class Asians  
 Rich Asians  
 Asian elected officials  
 Asian business owners  
 Asian sports figures  
 Asian newscasters  
 Asian doctors, lawyers and other professionals  
 Asians with foreign-sounding first names  
 Asians who benefit from affirmative action

#### PERCEPTIONS OF PREJUDICE

I am now going to read some statements about various situations that affect minorities in the United States. Please listen to the statements carefully and on a scale of 0 to 100 tell me whether you strongly disagree or strongly agree. If you completely disagree say 0; if you completely agree say 100; and if you are neutral say 50, but feel free to use all numbers in-between.

Strongly                      Strongly  
 0 Disagree .....100 Agree

#### Blacks

90. Any black who is educated and does what is considered "proper" will be accepted and eventually get ahead
91. Many blacks have only themselves to blame for not doing better in life. If they tried harder, they would do better.
92. When two qualified people, one black and one white, are

considered for the same job, the black won't get the job  
no matter how hard he or she tries.

- 93. The best way to overcome discrimination is for each individual black person to be even better trained and more qualified than the most qualified white person.
- 94. The future looks very promising for educated blacks.

**Latinos**

- 95. Any Latino who is educated and does what is considered "proper" will be accepted and eventually get ahead
- 96. Many Latinos have only themselves to blame for not doing better in life. If they tried harder, they would do better.
- 97. When two qualified people, one Latino and one white, are considered for the same job, the Latino won't get the job no matter how hard he or she tries.
- 98. The best way to overcome discrimination is for each individual Latino person to be even better trained and more qualified than the most qualified white person.
- 99. The future looks very promising for educated Latinos.

**Asians**

- 100. Any Asian who is educated and does what is considered "proper" will be accepted and eventually get ahead
- 101. Many Asians have only themselves to blame for not doing better in life. If they tried harder, they would do better.
- 102. When two qualified people, one Asian and one white, are considered for the same job, the Asian won't get the job no matter how hard he or she tries.
- 103. The best way to overcome discrimination is for each individual Asian to be even better trained and more qualified than the most qualified white person.
- 104. The future looks very promising for educated Asians.
- 105. Thinking about the way things are today compared to how they were before the civil

rights movement of the 1960s, would you say there is more, less, or about the same discrimination against:

	More	Less	Same
	Discrimination	Discrimination	Discrimination
Blacks?			
Latinos?			
Asians?			

106. Twenty years from now, do you think there will be more, less, or the same amount of discrimination against

	More	Less	Same
	Discrimination	Discrimination	Discrimination
Blacks?			
Latinos?			
Asians?			

#### COMMON FATE IDENTITY

- What do you think should be more important to blacks in the United States, being black, being American, or should both identities be equally important?
- How about Latinos such as Mexicans--do you think it should be more important for them to be Mexican, American, or should both identities be equally important?
- And for Asian groups such as the Chinese--do you think it should be more important for them to be Chinese, American, or should both identities be equally important?
- To what extent do you think that what happens to each of the following groups will affect what happens to you in your life:

	Will not affect me at all	Will affect me a little	Will affect me somewhat	Will affect me a lot
Blacks?				
Latinos?				
Asians?				

#### RACIAL/ETHNIC IDENTITY

5. On a scale of 0 to 100, please indicate the extent you agree with each of the following statements, where 0 means total disagreement and 100 indicates total agreement.

Total disagreement	Total agreement
0.....	100

- Black children should study an African language  
Blacks should always vote for black candidates  
Black women should not date white men  
Black men should not date white women  
Blacks should marry other blacks.  
Black children should have mostly black friends  
Black consumers should shop in black-owned stores  
Black parents should give their children African names  
Black students should attend predominantly black schools  
Black families should live in predominantly black neighborhoods  
Predominantly black schools should have black teachers and administrators
6. Again on a scale of 0 to 100, please indicate the extent you agree with each of the following statements, where 0 means total disagreement and 100 indicates total agreement.
- |   | Total<br>disagreement | Total<br>agreement |
|---|-----------------------|--------------------|
|   | 0.....                | 100                |
| Latino children should study Spanish  |                       |                    |
| Latinos should always vote for Latino candidates                            |                       |                    |
| Latino women should not date white men                                      |                       |                    |
| Latino men should not date white women                                      |                       |                    |
| Latino children should have mostly Latino friends                           |                       |                    |
| Latino consumers should shop in Latino-owned stores                         |                       |                    |
| Latino parents should give their children Spanish names                     |                       |                    |
| Latino students should attend predominantly Latino schools                  |                       |                    |
| Latino families should live in predominantly black neighborhoods            |                       |                    |
| Predominantly Latino schools should have Latino teachers and administrators |                       |                    |
7. Finally consider Asians. Again on a scale of 0 to 100, please indicate the extent you agree with each of the following statements, where 0 means total disagreement and 100 indicates total agreement.
- |  | Total<br>disagreement | Total<br>agreement |
|--|-----------------------|--------------------|
|  | 0.....                | 100                |
| Asian children should study an Asian language            |                       |                    |
| Asians should always vote for Asian candidates           |                       |                    |
| Asian women should not date white men                    |                       |                    |
| Asian men should not date white women                    |                       |                    |
| Asian children should have mostly Asian friends          |                       |                    |
| Asian consumers should shop in Asian-owned stores        |                       |                    |
| Asian parents should give their children Asian names     |                       |                    |
| Asian students should attend predominantly Asian schools |                       |                    |



Asian families should live in predominantly Asian neighborhoods  
Predominantly Asian schools should have Asian teachers and administrators

### SELF ESTEEM

8. The next few items assess how you feel about yourself. On a scale of 0 to 100, please indicate the extent you agree with each of the following statements, where 0 means total disagreement and 100 indicates total agreement:

Total disagreement	Total agreement
0.....	100

I feel that I am a person of worth, equal to others  
I feel that I have a number of good qualities  
All in all, I am inclined to feel that I am a failure  
I am able to do things as well as most people  
I feel that I do not have much to be proud of  
I take a positive attitude toward myself  
On the whole, I am satisfied with myself.  
I wish I could have more respect for myself  
I feel useless at times  
At times, I think I'm no good at all

### SELF EFFICACY

115. Thinking about your life at the moment, on a 100-point scale please indicate the extent you agree with each of the following statements, where 0 means total disagreement and 100 indicates total agreement.

Total disagreement	Total agreement
0.....	100

I don't have control over the direction my life is taking  
In life, good luck is more important than hard work for success  
Every time I try to get ahead something or somebody stops me  
When I make plans, I am almost certain I can make them work  
I feel left out of things going on around me  
If I work hard, I can do well

### DEMOGRAPHIC AND SOCIOECONOMIC BACKGROUND

1. What is your date of birth?

2. Are you male or female?
3. What is the highest level of schooling achieved by your mother?  
Grade School  
Some High School  
High School Graduate  
Some College  
College Graduate  
Some Post-Graduate  
Graduate or Professional Degree  
Don't Know
4. What is the highest level of school achieved by your father?  
Grade School  
Some High School  
High School Graduate  
Some College  
College Graduate  
Some Post-Graduate  
Graduate or Professional Degree  
Don't Know
5. Has your mother ever worked?  
If yes, what is/was her occupation?
6. Is your mother currently working?  
If yes, how many hours per week?
7. Has your father ever worked?  
If yes, what is/was his occupation?
8. Is your father currently working?  
If yes, how many hours per week?
9. Including half-brothers and half-sisters, how many of your siblings are aged 18 or older?  
If greater than 0, how many have graduated from high school?
10. Including half-brothers and half-sisters, how many of your siblings are aged 25 or older?

If greater than 0, how many have graduated from college?

11. Which term best describes your racial and ethnic origins?  
White  
Non-Hispanic Black  
Asian  
Chinese  
Japanese  
Vietnamese  
Korean  
Filipino  
Indian  
Other  
Hispanic Black  
Mexican  
Puerto Rican  
Cuban  
Dominican  
Central American  
South American  
Hispanic White  
Mexican  
Puerto Rican  
Cuban  
Dominican  
Central American  
South American  
Mixed Race (Specify):
12. Was your mother born in the United States?  
If no, where?
122. Was your father born in the United States?  
If no, where?
13. Were you born in the United States?  
If no: where?  
date you first entered the United States?  
total number of visits to United States?  
total time spent in United States?  
citizen or legal resident alien?
14. What is your religious background?

Catholic  
Protestant  
Jewish  
Moslem  
Hindu  
Buddhist  
Other

15. On a scale of 0 to 100, how religious would you say are you, where 0 indicates you are extremely unreligious and 100 indicates you are extremely religious:

0 Extremely unreligious ..... 100 Extremely religious

16. On a scale of 0 to 100, how observant would you say you are of your religion's customs, ceremonies, and traditions?
- 0 Extremely observant ..... 100 Extremely observant
17. How often do you attend religious services?
- Never  
Rarely  
Often but not every week  
Once a week  
More than once a week
18. Did one of your parents own the home or apartment where you spent your senior year of high school?
- If yes, how much do you think that home or apartment is worth? That is, how much do you think it would sell for if it were put up for sale?
19. Could you estimate the annual income of the household in which you spent your senior year of high school? In thinking about household income you should include the wages and salaries of all household members, plus any self-employment income they may have had, along with interest, dividends, alimony payments, social security, and pensions.
20. During the time your were in school—from 1<sup>st</sup> through 12<sup>th</sup> grade—did your family ever receive public assistance?
21. Did you apply for financial aid when you sought admission to college?
- If yes: It would be very helpful for this study if we could link the information on your financial aid application to the information we collect from this survey? Would you be willing to give permission for us to use information from your application if we promised to take your name off of all the resulting data files and kept everything strictly confidential?
22. Would you be willing to allow us access to your college application, so that we could connect the data it contains with information from this survey? Again, this would significantly advance the goals of the study and we promise to strip all identifying information from the application form and keep all the data we use strictly confidential.

### TRACKING INFORMATION

23. What is your current telephone number?"
24. What is the name, address, and phone number of your mother?
25. What is the name, address, and phone number of your father?
26. Could you please give the name and phone number of at least two other people who would always know how to contact you?

	Name	Relationship	Phone Number
Person 1:			
Person 2:			

# **Appendix C**

**SURVEY OF COLLEGE LIFE AND EXPERIENCE**

**SECOND WAVE INSTRUMENT**

**May 1998**

**Douglas S. Massey  
University of Pennsylvania**

**Camille Z. Charles  
Ohio State University**

**Principal Investigators**

**Supported by:**

**The Andrew W. Mellon Foundation  
140 E. 62<sup>nd</sup> Street  
New York, NY 10021**

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## COURSES AND GRADES

Thank you for agreeing to speak with us again. When we first spoke with you last Fall we asked a lot of questions about how you grew up—your family background, the neighborhoods where you lived, and the schools you attended. This interview will be much shorter and will focus on your experiences since coming to college. To begin with, I'd like to ask about your course work and grades so far.

1. Is (Student's University) on a quarter or semester system?

Quarter \_\_\_\_ Semester

2. About what was the date that classes began at (Student's University)?

Date \_\_\_\_\_

3. About what date did classes end?

Date: \_\_\_\_\_

4. At the beginning of Fall term, how many courses did you register for? Include each course in which you originally registered, even if you later dropped it.

Number of courses:

5. Could you please tell me the department, number, and title for each course you registered in last Fall? In each case, please indicate whether you eventually dropped it, and if you completed it what your final grade was.

<u>Department</u>	<u>Number</u>	<u>Title</u>	<u>Dropped?</u>	<u>Grade</u>
-------------------	---------------	--------------	-----------------	--------------

- |    |  |  |  |  |
|----|--|--|--|--|
| 1. |  |  |  |  |
| 2. |  |  |  |  |
| 3. |  |  |  |  |
| 4. |  |  |  |  |
| 5. |  |  |  |  |
| 6. |  |  |  |  |

6. ***Quarter System Only:*** At the beginning of Winter term, how many courses did you register for? Include each course in which you originally registered, even if you later dropped it.

Number of courses:

7. ***Quarter System Only:*** Could you please tell me the department, number, and title of each course you registered in during Winter Term? In each case, please indicate whether you eventually dropped it, and if you completed it what your final grade was.



<u>Department</u>	<u>Number</u>	<u>Title</u> _____	<u>Dropped?</u>	<u>Grade</u>
1.				
2.				
3.				
4.				
5.				
6.				

8. At the beginning of Spring term, how many courses did you register for? Include each course in which you originally registered, even if you later dropped it.

Number of courses: \_\_\_\_\_

9. Could you please tell me the department, number, and title for each course you registered in last Fall? In each case, please indicate whether you are still registered and what grade you expect to earn.

<u>Department</u>	<u>Number</u>	<u>Title</u> _____	<u>Still Registered?</u>	<u>Expected Grade</u>
1.				
2.				
3.				
4.				
5.				
6.				

10. Have you declared a major yet? If yes, what major? \_\_\_\_\_

#### **LIVING ARRANGEMENTS**

11. In which of the following do you presently live:  
 On campus dormitory?  
 On campus apartment?  
 Off campus apartment?  
 Fraternity or sorority?  
 Off campus house?  
 With parents or other relative?  
 Other: \_\_\_\_\_
12. With how many others do you share your dorm, apartment, or house? \_\_\_\_\_
13. Do you have a separate bedroom? \_\_\_\_\_
14. Do you share a bathroom with others? \_\_\_\_\_

15. Is there someplace in your dorm, apartment, or house where you can be alone to read or study?
  16. In the dorm, apartment, or house where you now live, indicate on a scale of 0 to 100 how often the following things have occurred, where 0 indicates they never happened and 100 indicate they happened virtually every day,:
- 0 Never .....100 Every Day
- I was trying to study but was distracted by talking or conversation
  - I was trying to study but was distracted by someone playing a stereo
  - I was trying to study but was distracted by someone watching TV
  - I was trying to study but was distracted by friends partying
  - I was trying to study but friends talked me into going out
  - I had to leave home to get my schoolwork done
  - I stayed late at the library to avoid going home
  - I felt lonely and homesick
  - I felt like I just wanted to get away from campus for a while
17. During the Fall Term, how many times did you visit your mother or father? How many total days did you spend away from campus on these visits?
  18. About how much do you pay a month to live in your dorm, apartment, or house?
  19. About how much does it cost you each month to eat regular daily meals?

#### **WORK, STUDY, AND SOCIAL HABITS**

20. I want you to think back to the most recent Tuesday on which school was in session. Beginning at the time you awakened, could you please tell me what you did during each hour of the day until you retired for the night. On that Tuesday, what time did you awake? At what time did you retire for the evening to go to sleep?

Exact Time Awakened:   X  

Exact Time Went to Bed:   Y  

For simplicity, let's classify your activities into a few general categories:

- Grooming
- Eating
- Sleeping
- Attending Class
- Playing Sports
- Studying
- Working for Pay
- Socializing
- Relaxing
- Doing Volunteer Work
- Other

Beginning at (next whole hour from X), take me through that most recent Tuesday when school was in session and account for your time. During the first hour, from X to X+1, were you mostly grooming yourself, eating, sleeping, attending class, studying, socializing, or relaxing?

How about from X+1 to X+2? What was your principal activity then?

Continue hour by hour from X+2 to Y.

21. Now I want you to consider the last week, from Monday through Friday, on which classes were held at (Student's University). Could you please estimate the total number of hours that you spent:

Attending class or lab?  
 Studying?  
 Doing extracurricular activities?  
 Watching television?  
 Listening to music?  
 Working for pay?  
 Doing volunteer work in community?  
 Playing or practicing sports?  
 Attending a sporting event?  
 Attending parties?  
 Socializing with friends (besides at parties)?  
 Sleeping?  
 Other: \_\_\_\_\_

1. Now, let's think about the most recent weekend between two weeks when classes were being held and you were on campus. Beginning on Saturday morning and continuing through Sunday night, about how many hours did you spend:

Attending class or lab?  
 Studying?  
 Doing extracurricular activities?  
 Watching television?  
 Listening to music?  
 Working for pay?  
 Doing volunteer work in community?  
 Playing or practicing sports?  
 Attending a sporting event?  
 Attending parties?  
 Socializing with friends (besides at parties)?  
 Sleeping?  
 Other: \_\_\_\_\_

2. On a scale of 0 to 100, where 0 indicates you never engage in a behavior and 100 indicates you always do it, please indicate the frequency with which you:

	Never	Always
	0.....	100
Ask professors questions in class.		
Raise your hand during a lecture when you don't understand something.		
Approach professors after class to ask a question.		
Meet with professors in their offices to ask about material you don't understand.		
Meet with professors in their offices to talk about other matters.		
Study in library.		
Look for a book or article in the library.		
Use campus computer lab.		
Use the internet for course-related research.		
Study with other students.		
Study by yourself.		
Organize study groups with friends or classmates.		
Seek help from a formal tutor.		
Use services available for disabled students.		
Seek help from a friend or classmate.		
Take special instruction to improve writing skills.		
Take special instruction to improve reading skills.		
Take special instruction to improve mathematical skills.		
Take special instruction to improve test-taking skills.		
Take special instruction to improve study skills		
Used the college career placement service		
Visit an academic advisor to discuss your progress.		
Speak to a financial aid counselor about money matters.		
Visit the student health clinic about a physical problem.		
Visit a counselor about a psychological issue.		

#### INTERFERING PROBLEMS

25. Lots of things may happen in families to affect young people. In the last two years, have any of the following happened within your family? (Mark All That Apply)

My parent or guardian moved to a new home  
 One of my parents got married or remarried  
 My parents got divorced or separated  
 A parent lost a job (which one?)  
 A parent started a new job (which one?)  
 I became seriously ill or disabled  
 An unmarried sister got pregnant  
 A brother or sister dropped out of school  
 A parent went on public assistance  
 Another member of my immediate family went on public assistance  
 A member of my immediate family used illegal drugs

A member of my immediate family spent time in a drug/alcohol rehabilitation program  
 A member of my immediate family was the victim of crime  
 A member of my immediate family got into trouble with the law  
 A member of my immediate family became seriously ill or disabled  
 A member of my immediate family became homeless for a period of time  
 A parent died (which one?)  
 Another close relative died

#### FINANCIAL MATTERS

- 26.. About how much money do you think you will need to attend college this academic year, including tuition, academic fees, room and board, and your daily expenses for living and entertainment?

Amount Needed: \_\_\_\_\_

27. Of this total amount, how much will be funded from each of the following sources?

Parental contributions:  
 Contributions from other family members:  
 Grant or fellowship from university:  
 Grant or fellowship from other funding agency:  
 Student loan:  
 Personal savings:  
 Earnings from work/study job:  
 Earnings from other work:  
 Other source:

28. At any time during the current academic year have you held a job on which you worked for pay?
- If yes: Since the day that classes began last Fall, about how many weeks have you worked in total?
  - If yes: During that time, about how many hours per week did you work, on average?
  - If yes: How much do you earn per hour working at your job?
  - If yes: What kind of work did you do for pay on your most recent job (Interviewer codes into categories)?

Fast food worker  
 Waiter or waitress  
 Store clerk, salesperson  
 Office or clerical worker  
 Library worker  
 Babysitting or child care

Hospital or health worker  
Other

- e. If yes: Are you required to work as part of your school's financial aid package??
- f. If yes: Apart from financial aid requirements, do *you* feel it is necessary to work to finance your college education?

29. Other than birthday or holiday gifts, have you received any money from family members since you have been at college?

If yes:	Amount?	From whom?
	_____	_____
	_____	_____
	_____	_____

30. Other than birthday or holiday gifts, have you *sent* any money to family members since you have been at college?

If yes:	Amount?	To whom?
	_____	_____
	_____	_____
	_____	_____

31. Do you have access to a credit card that you can use while you are at college?

If yes: About how much, in total, did you charge during the past 30 days?

If yes: Who typically makes payments on your credit card bills?

Respondent	_____
Parent(s)	_____
Other Family Member:	_____
Other person:	_____

#### RESPONDENT'S ATTITUDES TOWARD COLLEGE

32. On a scale of 0 to 100, where 0 indicates total disagreement and 100 indicates complete agreement, how much do you agree or disagree with each of the following statements about college?

Total Disagreement	Total Agreement
0.....	100

I am doing less well in college than I would like:  
 I am having problems with my financial aid:  
 I am having problems at home with a family member:  
 I have too little time to do school work:  
 I have too little time to do things at home or in the community:  
 My high school prepared me well for college work.  
 I am afraid of failing out of college.

33. Using the same scale, how much do you agree or disagree with the following statements?

Total	Total
Disagreement	Agreement
0.....	100

- My test scores in class are an accurate indicator of my academic abilities.  
 My course grades are an accurate indicator of my academic abilities.  
 If I am having trouble with course material, other students probably are as well.  
 If I let my instructors know that I am having difficulty in class, they will think less of me.  
 If I let other students know that I am having difficulty in class, they will think less of me.  
 If instructors hold negative stereotypes about certain groups, it will not affect their evaluations of individual students from that group.  
 If other students hold negative stereotypes about certain groups, it will not affect their evaluations of individual students from that group.  
 If I excel academically, it reflects positively on my racial or ethnic group.  
 If I do poorly academically, it reflects negatively on my racial or ethnic group.
- 34, On a scale of 0 to 100, where 0 indicates no effort at all and 100 indicates the maximum possible effort, how hard would you say you have been trying during this past year of college?
- Effort rating: \_\_\_\_\_

35. Measuring the degree of difficulty on a scale of 0 to 100, where 0 is not difficult at all and 100 is extremely difficult, how hard were each of the following subjects for you?

0 Not Difficult at All .....100 Extremely Difficult

English  
History  
Mathematics  
Natural Sciences  
Social Studies  
Foreign Languages

36. In thinking about how hard to try in your college studies, how important for you is each of the following considerations? Use a scale of 0 to 100, where 0 indicates no importance whatsoever and 100 indicates the utmost importance.

Completely                      Extremely  
Unimportant                  Important  
0.....100

I want to make my parents proud of me.  
I don't want to embarrass my family  
My family is making sacrifices for my education  
I want to learn the material  
I need the grades to get into graduate/professional school.  
Graduating from college will help me get a job  
I want to keep up with my friends  
My teachers expect me to do well.  
My teachers encourage me to work hard  
I don't want to look foolish or stupid in class  
If I don't do well, people will look down on others like me.

#### ATTITUDES OF PARENTS AND PEERS

37. Once again using a scale of importance that goes from 0 to 100, how important is it to your *parents* (or guardian) that you:

Completely                      Extremely  
Unimportant                  Important  
0.....100

Attend (student's college)?  
Work hard in college?  
Get good grades in college?  
Graduate from college?  
Play sports in college?  
Go on to graduate or professional school?  
Study something "practical."  
Study whatever interests me.



38. Considering the views of your friends and close acquaintances here at (student's college), how important is it to them to:

Completely	Extremely
Unimportant	Important
0.....100	

Attend classes regularly?  
 Study hard?  
 Play sports?  
 Get good grades?  
 Be popular/well-liked by students?  
 Graduate from college?  
 Have a steady boyfriend/girlfriend?  
 Spend time with friends just "hanging out?"  
 Be willing to party, get wild?  
 Go on to graduate or professional school?  
 Participate in religious activities?  
 Be happy and personally satisfied?  
 Do community work or volunteer?  
 Have a part time job to pay for school?  
 Study something "practical?"  
 Study something interesting and creative?

#### PERCEPTIONS OF PREJUDICE

39. In your college classes, have other students ever made you feel uncomfortable or self-conscious because of your race or ethnicity?
- If yes: How often? Rarely, Sometimes, Often, or Very Often?
40. In your college classes, have any of your professors ever made you feel uncomfortable or self-conscious because of your race or ethnicity?
- If yes: How often? Rarely, Sometimes, Often, or Very Often?
41. Walking around campus, have you ever been made to feel uncomfortable or self-conscious because of your race or ethnicity?
- If yes: How often? Rarely, Sometimes, Often, or Very Often?

42. Have the campus police ever asked you to present identification?  
If yes: How often? Rarely, Sometimes, Often, or Very Often?  
If yes: Did you feel the requests were justified? Yes / No
43. Have you ever heard derogatory remarks made about your racial or ethnic group by fellow students?  
If yes: How often? Rarely, Sometimes, Often, or Very Often?
44. Have you ever heard derogatory remarks made about your racial or ethnic group by professors?  
If yes: How often? Rarely, Sometimes, Often, or Very Often?
45. Have you ever heard derogatory remarks made about your racial or ethnic group by other college staff?  
If yes: How often? Rarely, Sometimes, Often, or Very Often?
46. Have you ever experienced any other form of harassment on campus simply because of your race or ethnicity?  
If yes: How often? Rarely, Sometimes, Often, or Very Often?
47. Have you ever experienced harassment from members of your own racial or ethnic group because you interacted or associated with members of some other group?  
If yes: How often? Rarely, Sometimes, Often, or Very Often?
48. Have you ever felt you were given a bad grade by a professor because of your race or ethnicity?  
If yes: How often? Rarely, Sometimes, Often, or Very Often?
49. Have you ever felt you were discouraged by a professor from speaking out in class because of your race or ethnicity?  
If yes: How often? Rarely, Sometimes, Often, or Very Often?
50. Have you ever been discouraged from a course of study by your advisor or professor?  
If yes: How often? Rarely, Sometimes, Often, or Very Often?

51. In the courses you have taken so far this year, how many of your professors have been:
- Female?
  - Black?
  - Hispanic?
  - Asian?
52. Thinking back to the very first class you attended at (college or university), roughly what percentage of the students were:
- Female?
  - Black?
  - Hispanic?
  - Asian?
53. Considering the 10 closest friends you have made since coming to college, how many are:
- Female?
  - White?
  - Black?
  - Hispanic?
  - Asian?

#### **ROMANTIC RELATIONSHIPS**

54. Since the beginning of the Fall term have you had any steady romantic relationships?
- If yes: How many steady relationships have you had?
- For each relationship: Is this someone you met at college, someone you knew from before, or someone you met off campus?
55. Since the beginning of the Fall term have you engaged in sexual intercourse?
56. Have you ever shared a household with anyone as part of a romantic relationship?
- If yes: Are you currently living with someone?
- If yes: What is the duration of time you lived with this person, in months?

57. Have you ever dated anyone from a racial or ethnic group different from your own?
- If yes, what other group members have you dated?
- Whites?  
Blacks?  
Hispanics?  
Asians?
58. Have you ever been married?
- If yes: Are you currently married?  
If yes: How long have you been married?
59. For women: Have you ever given birth to any children?  
For men: Have you ever fathered any children?
- If yes: How many children have you borne?  
If yes: Have you given any of these children up for adoption?  
If yes: How many children currently live with you?  
If yes: Who has legal custody of your child(ren)?
60. If respondent reports children living with him/her:
- On Monday through Friday, how many hours per day do you typically spend caring for your child(ren)?
- On a typical weekend, how many hours per day do you spend caring for your child(ren)?
- In a typical month, how many school days do you miss because of child care duties?
- How often do child care responsibilities interfere with studying? Never, Sometimes, Frequently, or Very Frequently?

## **Appendix D**

**NATIONAL LONGITUDINAL SURVEY OF FRESHMEN**

**THIRD WAVE INSTRUMENT FOR 2001**

**SPRING TERM OF SOPHOMORE YEAR**

**October 2000**

**Douglas S. Massey  
Camille Z. Charles  
University of Pennsylvania**

**Principal Investigators**

**Supported by:**

**The Andrew W. Mellon Foundation  
140 E. 62<sup>nd</sup> Street  
New York, NY 10021**

**NATIONAL LONGITUDINAL SURVEY OF FRESHMEN  
THIRD WAVE INSTRUMENT FOR 2001  
COMPUTER ASSISTED TELEPHONE INTERVIEW**

Thank you for agreeing to speak with us again. When we first interviewed you last Fall we asked a lot of questions about how you grew up—your family background, the neighborhoods where you lived, and the schools you attended. During the telephone re-interview we did last Spring we asked about your social and academic experiences as a college freshman. Now we'd like to catch up on your life since we last talked to you. As with the interview last Spring, this conversation will be much shorter than the original Fall survey. Naturally, **you are free to stop the interview at any time and can refuse to answer any question.** May I proceed? Then let's start with the basics.

1. Are you still enrolled as a student (full- or part-time) at (*name of college or university*)?

No (Answer Questions 2-6)

Yes (Go to Question 7)

**FOR RESPONDENTS NOT CURRENTLY ENROLLED AT SAME INSTITUTION**

2. How important were the following factors in your deciding to leave (*college or university*)? Very unimportant, somewhat unimportant, somewhat important, or very important?

High cost of education  
Too much debt  
Poor grades  
Courses too difficult  
Not enough course credits  
Poor teaching  
Classes too large  
Lack of interest  
Lack of effort  
Lack of friends  
Didn't fit in  
Family unsupportive  
Friends unsupportive  
Family responsibilities  
Campus racial/ethnic climate

3. Could you please tell me the department, number, title, and grade for each course you took during your **last completed term** at (*name of college or university*)? List Term: Fall 1999, Winter 2000, or Spring 2000.

<u>Department</u>	<u>Number</u>	<u>Title</u> _____	<u>Final Grade</u>
1.			
2.			
3.			
4.			
5.			
6.			

4. Are you currently enrolled in another college or university?  
Yes (specify: \_\_\_\_\_) Go to Question 7
5. What is the likelihood that you will re-enroll at some college or university in the next two years?  
Very Unlikely  
Somewhat Unlikely  
Somewhat Likely  
Very Likely
6. Are you currently working at a paid job?  
No (Skip to **75**)  
Yes:  
a. What is your current job? \_\_\_\_\_  
b. What is your hourly wage? \_\_\_\_\_  
c. How many hours per week? \_\_\_\_\_ (**Skip to 75**)

#### ACADEMIC PROGRESS AT CURRENT INSTITUTION

7. During your final term as a freshman last year, how many courses did you register for? Include each course in which you originally registered, even if you later dropped it.  
  
Number of courses: \_\_\_\_\_
8. Could you please tell me the department, number, and title for each course in which you registered during that term? In each case, please indicate whether you eventually dropped it, and if you completed it what your final grade was.

<u>Department</u>	<u>Number</u>	<u>Title</u> _____	<u>Dropped?</u>	<u>Grade</u>
1.				
2.				
3.				
4.				

- 5.
- 6.



9. Is (*current college or university*) on a quarter or semester system?

Quarter \_\_\_\_ Semester

10. About what was the date that classes began at (*college or university*) in the Fall of 2000?

Date \_\_\_\_\_

11. At the beginning of Fall Term 2000, how many courses did you register for? Include each course in which you originally registered, even if you later dropped it.

Number of courses:

12. Could you please tell me the department, number, and title for each course you registered in last Fall? In each case, please indicate whether you eventually dropped it, and if you completed it what your final grade was.

	<u>Department</u>	<u>Number</u>	<u>Title</u> _____	<u>Dropped?</u>	<u>Grade</u>
1.					
2.					
3.					
4.					
5.					
6.					

13. **Quarter System Only:** At the beginning of Winter term, how many courses did you register for? Include each course in which you originally registered, even if you later dropped it.

Number of courses:

14. **Quarter System Only:** Could you please tell me the department, number, and title of each course you registered in during Winter Term? In each case, please indicate whether you eventually dropped it, and if you completed it what your final grade was.

	<u>Department</u>	<u>Number</u>	<u>Title</u> _____	<u>Dropped?</u>	<u>Grade</u>
1.					
2.					
3.					
4.					
5.					
6.					

15. At the beginning of Spring term, how many courses did you register for? Include each course in which you originally registered, even if you later dropped it.

Number of courses:

16. Could you please tell me the department, number, and title for each course you registered in last Fall? In each case, please indicate whether you are still registered and what grade you expect to earn.

<u>Department</u>	<u>Number</u>	<u>Title</u>	<u>Still Registered?</u>	<u>Expected Grade</u>
1.				
2.				
3.				
4.				
5.				
6.				

17. Have you declared a major yet? If yes, what major? \_\_\_\_\_
18. At this point in your college career, what is the highest degree you expect to obtain?  
Less Than BA or BS  
BA or BS  
MA or Equivalent (MBA, MPH, MSW, etc.)  
Ph.D., MD, LLD, or Equivalent
19. When you were applying to college or university, how many applications did you send out?
20. To how many schools were you admitted as a freshman?
21. In terms of your preferences, what rank was (*name of college or university*) among those to which you applied?
22. How confident are you that you made the right choice in coming to (*name of college or university*)? Not at all confident, somewhat unconfident, somewhat confident, or very confident?
23. How important is it for you to graduate from (*name of college or university*)? Very unimportant, somewhat unimportant, neither important nor unimportant, somewhat important, or very important?
24. How satisfied are you with your intellectual development since enrolling in (*name of college or university*)? Very dissatisfied, somewhat dissatisfied, neither satisfied nor dissatisfied, somewhat satisfied, very satisfied?
25. How satisfied are you with your social life since enrolling in (*name of college or university*)? Very dissatisfied, somewhat dissatisfied, neither satisfied nor dissatisfied, somewhat satisfied, very satisfied?

26. Considering everything, how would you rate your experience so far at (*name of college or university*)? Extremely negative, very negative, somewhat negative, neither positive nor negative, somewhat positive, very positive, or extremely positive?
27. Did you take the SAT or the ACT test when you were applying to colleges and universities for your freshman year?

**If SAT:** Do you happen to recall the verbal score? \_\_\_\_ The quantitative score? \_\_\_\_

**IF ACT:** Do you happen to recall the composite score? \_\_\_\_

#### **LIVING ARRANGEMENTS**

28. In which of the following do you presently live:  
 On campus dormitory?  
 On campus apartment?  
 Off campus apartment?  
 Fraternity or sorority?  
 Off campus house?  
 With parents or other relative?  
 Other: \_\_\_\_\_
29. Do you presently live in a "theme" dorm or apartment, such as one devoted to a foreign language or cultural orientation?  
 If yes: What is the theme or orientation? \_\_\_\_\_
30. With how many others do you share your dorm, apartment, or house?  
 Total Number: \_\_\_\_  
 How many are white? \_\_\_\_  
 How Many Are Asian? \_\_\_\_  
 How Many Are Black?: \_\_\_\_  
 How Many are Latino? \_\_\_\_
31. Do you have a separate bedroom?
32. Do you share a bathroom with others?
33. Is there someplace in your dorm, apartment, or house where you can be alone to read or study?
34. In the dorm, apartment, or house where you now live, how often have the following things occurred? Never, sometimes, often, or very often?
- I was trying to study but was distracted by talking or conversation  
 I was trying to study but was distracted by someone playing a stereo  
 I was trying to study but was distracted by someone watching TV  
 I was trying to study but was distracted by friends partying

I was trying to study but friends talked me into going out  
I had to leave home to get my schoolwork done  
I stayed late at the library to avoid going home  
I felt lonely and homesick  
I felt like I just wanted to get away from campus for a while

35. About how much do you pay a month to live in your dorm, apartment, or house?
36. About how much does it cost you each month to eat regular daily meals?
37. Between the start of school in the Fall and the beginning of Christmas vacation, how many times did you visit your mother or father? How many total days did you spend away from campus on these visits?
38. Between the start of school in the Fall and the beginning of Christmas vacation, how many other trips away from campus did you take? How many total days did you spend on these visits?

#### USE OF TIME

39. Now I want you to consider the last week, from Monday through Friday, on which classes were held at (college or university). Could you please estimate the total number of hours that you spent:

Attending class or lab?  
Studying?  
Doing extracurricular activities?  
Watching television?  
Listening to music?  
Working for pay?  
Doing volunteer work in community?  
Playing or practicing sports?  
Attending a sporting event?  
Attending parties?  
Socializing with friends (besides at parties)?  
Sleeping?  
Other: \_\_\_\_\_

40. Now, let's think about the most recent weekend between two weeks when classes were being held and you were on campus. Beginning on Saturday morning and continuing through Sunday night, about how many hours did you spend:

Attending class or lab?  
Studying?  
Doing extracurricular activities?  
Watching television?  
Listening to music?

Working for pay?  
 Doing volunteer work in community?  
 Playing or practicing sports?  
 Attending a sporting event?  
 Attending parties?  
 Socializing with friends (besides at parties)?  
 Sleeping?  
 Other: \_\_\_\_\_

41. How often during the most recent week of classes did you do each of the following things? Never, sometimes, often, or very often?

Ask professors questions in class.  
 Raise your hand during a lecture when you don't understand something.  
 Approach professors after class to ask a question.  
 Meet with professors in their offices to ask about material you don't understand.  
 Meet with professors in their offices to talk about other matters.  
 Study in library.  
 Look for a book or article in the library.  
 Use campus computer lab.  
 Use the internet for course-related research.  
 Study with other students.  
 Organize study groups with friends or classmates.  
 Seek help from a formal tutor.  
 Seek help from a friend or classmate.  
 Used the college career placement service  
 Visit an academic advisor to discuss your progress.  
 Speak to a financial aid counselor about money matters.  
 Visit the student health clinic about a physical problem.  
 Visit a counselor about a psychological issue.

#### **LIFE ON CAMPUS**

42. In which of the following groups are you currently involved? For those in which you are involved, which have members who are predominantly of your own ethnic or racial group?
- A varsity or junior varsity sports team?  
 An intramural sports team?  
 A sports club?  
 A foreign language group?  
 A sorority or fraternity?  
 A political group?  
 An environmental group?  
 A career development group?  
 A religious group?  
 A music, arts, or theater group?

Other voluntary group?

43. How much do you agree or disagree with each of the following statements about college? Do you strongly disagree, disagree somewhat, neither agree nor disagree, agree somewhat, or strongly agree?

I am doing less well in college than I would like:  
I am having problems with my financial aid:  
I am having problems at home with a family member:  
I have too little time to do school work:  
I have too little time to do things at home or in the community:  
My high school prepared me well for college work.  
I am afraid of failing out of college.

44. Using the same scale, how much do you agree or disagree with the following statements? Do you strongly disagree, disagree somewhat, neither agree nor disagree, agree somewhat, or strongly agree?

My test scores in class are an accurate indicator of my academic abilities.  
My course grades are an accurate indicator of my academic abilities.  
If I am having trouble with course material, other students probably are as well.  
If I let my instructors know that I am having difficulty in class, they will think less of me.  
If I let other students know that I am having difficulty in class, they will think less of me.  
If instructors hold negative stereotypes about certain groups, it affects their evaluations of individual students from that group.  
If other students hold negative stereotypes about certain groups, it affects their evaluations of individual students from that group.  
If I excel academically, it reflects positively on my racial or ethnic group.  
If I do poorly academically, it reflects negatively on my racial or ethnic group.

45. On a scale of 0 to 10, where 0 indicates no effort at all and 10 indicates the maximum possible effort, how hard would you say you have been trying to succeed academically during the current year of college?

Effort rating: \_\_\_\_\_

46. Using the same scale, how hard were you trying in each of the following subjects for you?
- English
  - History
  - Mathematics
  - Natural Sciences
  - Social Studies
  - Foreign Languages

47. In thinking about your college studies, how important for you is each of the following considerations? Very unimportant, somewhat unimportant, somewhat important, or very important?
- Graduating from college
  - Making parents proud of me.
  - Not embarrassing my family
  - Learning course material
  - Getting good grades
  - Getting into graduate or professional school
  - Getting a good job
  - Keeping up with my friends
  - Meeting professors' expectations
  - Not looking foolish or stupid in class
  - Not having people look down on me
48. What is the level of faculty interest in students at (*name of college or university*)? Very low, somewhat low, neither low nor high, somewhat high, very high?
49. How would you rate the overall quality of the faculty you have interacted with so far? Awful, very poor, somewhat poor, neither poor nor good, somewhat good, very good, or excellent?

#### **SOCIAL NETWORKS**

50. Please give the first names of the six people you consider to be closest to you. These are people that you talk to about things going on in your life, do things with, etc.

PERSON1 \_\_\_\_\_ PERSON2 \_\_\_\_\_ PERSON3 \_\_\_\_\_  
 PERSON4 \_\_\_\_\_

51. Do for PERSON1 TO PERSON4
- a. What is the race/ethnicity of PERSONX?
  - b. What is the gender of PERSONX?
  - c. How old is PERSONX?
  - d. What is PERSONX's relationship to you? (can list more than one)
    - Classmate or Coworker
    - Friend
    - Teacher
    - Romantic Partner
    - Family Friend
    - Brother or Sister
    - Parent
    - Spouse

- Other Relative
- e. What is PERSONX's level of education?  
Less Than High School  
High School graduate  
Currently in Same College or University  
Currently in Other College or University  
College Graduate  
Graduate/Professional Degree
- f. How long have you known PERSONX?  
<1 Year =0  
No. of Years
- g. How often do you interact with PERSONX, by telephone, email, letters, or in-person?  
Daily  
A few times a week  
Once a week  
Once a month  
A few times a year  
Once a year
- h. How much do you go to this person for advice?  
always  
often  
sometimes  
rarely  
never
- i. How much does this person accept you no matter what you do?  
always  
often  
sometimes  
rarely  
never



- j. How much does this person understand what you are really like?  
always  
often  
sometimes  
rarely  
never
- k. How much do you share your inner feelings with this person?  
always  
often  
sometimes  
rarely  
never
- l. In what situations do you make contact with PERSONX (check all that apply)?  
Studying  
On campus leisure activities  
Telephone  
Email  
Off-campus leisure activities  
On-campus extracurricular activities  
On or off campus work
- m. How supportive is PERSONX of your educational goals?  
Very unsupportive  
Somewhat unsupportive  
Neither supportive nor unsupportive  
Somewhat supportive  
Very supportive

#### **INTERFERING PROBLEMS**

- 53. Lots of things may happen in families to affect young people. Since we interviewed you last year, have any of the following happened within your family? (Indicate All That Apply)  
  
My parent or guardian moved to a new home  
One of my parents got married or remarried  
My parents got divorced or separated  
A parent lost a job (which one?)  
A parent started a new job (which one?)  
I became seriously ill or disabled  
An unmarried sister got pregnant  
A brother or sister dropped out of school  
A member of my immediate family went on public assistance  
A member of my immediate family used illegal drugs

A member of my immediate family spent time in a drug/alcohol rehabilitation program  
 A member of my immediate family was the victim of crime  
 A member of my immediate family got into trouble with the law  
 A member of my immediate family became seriously ill or disabled  
 A member of my immediate family became homeless for a period of time  
 A parent died (which one?)  
 Another member of my immediate family died?  
 A member of my extended family died?  
 A friend died?

#### FINANCIAL MATTERS

54. About how much money do you think you will need to attend college this academic year, including tuition, academic fees, room and board, and your daily expenses for living and entertainment?

Tuition  
 Academic Fees  
 Room and Board  
 Daily Expenses  
 Total Needed:

55. Of this total amount, how much will be funded from each of the following sources?

Parental contributions:  
 Contributions from other family members:  
 Grant or fellowship from university:  
 Grant or fellowship from other funding agency:  
 Student loan:  
 Personal savings:  
 Earnings from work/study job:  
 Earnings from other work:  
 Other source:

56. At any time during the current academic year have you held a job on which you worked for pay?
- If yes: Since the day that classes began last Fall, about how many weeks have you worked in total?
  - If yes: During that time, about how many hours per week did you work, on average?
  - If yes: How much do you earn per hour working at your job?
  - If yes: Are you required to work as part of your school's financial aid package??
  - If yes: Apart from financial aid requirements, do *you* feel it is necessary to work to finance your college education?

57. Other than birthday or holiday gifts, have you received any money from family members since you have been at college?

If yes:	Amount?	From whom?
	_____	_____
	_____	_____
	_____	_____
	_____	_____

58. Other than birthday or holiday gifts, have you *sent* any money to family members since you have been at college?

If yes:	Amount?	To whom?
	_____	_____
	_____	_____
	_____	_____
	_____	_____

59. Do you have access to a credit card that you can use while you are at college?

If yes: About how much, in total, did you charge during the past 30 days?

If yes: Who typically makes payments on your credit card bills?

Respondent	_____
Parent(s)	_____
Other Family Member:	_____
Other person:	_____

#### PERCEPTIONS OF PREJUDICE

Now I would like to ask you a few questions about your perceptions of race relations on campus during the current academic year. Since the beginning of the Fall Term:

60. Have other students ever made you feel uncomfortable or self-conscious in your classes because of your race or ethnicity? Never, rarely, sometimes, often, or very often?
61. Have any of your professors ever made you feel uncomfortable or self-conscious in your classes because of your race or ethnicity? Never, rarely, sometimes, often, or very often?
62. Have you ever been made to feel uncomfortable or self-conscious walking around campus because of your race or ethnicity? Never, rarely, sometimes, often, or very often?
63. Have the campus police ever asked you to present identification? Never, rarely, sometimes, often, or very often?

64. Have you ever heard derogatory remarks made about your racial or ethnic group by fellow students? Never, rarely, sometimes, often, or very often?
65. Have you ever heard derogatory remarks made about your racial or ethnic group by professors? Never, rarely, sometimes, often, or very often?
66. Have you ever heard derogatory remarks made about your racial or ethnic group by other college staff? Never, rarely, sometimes, often, or very often?
67. Have you ever experienced harassment from members of your own racial or ethnic group because you interacted or associated with members of some other group? Never, rarely, sometimes, often, or very often?
68. Have you ever felt you were given a bad grade by a professor because of your race or ethnicity? Never, rarely, sometimes, often, or very often?
69. Have you ever felt you were discouraged by a professor from speaking out in class because of your race or ethnicity? Never, rarely, sometimes, often, or very often?
70. Have you ever been discouraged from a course of study by your advisor or professor? Never, rarely, sometimes, often, or very often?
71. In the courses you have taken so far this academic year, how many of your professors have been:  
Female?  
Black?  
Hispanic?  
Asian?

#### **ROMANTIC RELATIONSHIPS**

72. Have been on any dates since the school year began?  
If yes, what other group members have you dated?  
Whites?  
Blacks?  
Hispanics?  
Asians?  
Other? Specify: \_\_\_\_\_

73. **If R reports dates with a partner in another group:** have you suffered negative reactions because you dated another racial or ethnic group? Never, sometimes, often, or very often?

From friends or acquaintances in your own group?  
From family members?  
From strangers of own group?  
From strangers in partner's group?  
From other strangers?

74. Do you currently have a steady romantic partner?

If yes, what is your partner's race or ethnicity?  
White?  
Black?  
Hispanic?  
Asian?  
Other? Specify: \_\_\_\_\_

#### TRACKING INFORMATION

In closing, we would like to update your contact information.

75. What is your current telephone number?"
76. What is the name, address, and phone number of your mother?
77. Did she attend (*name of college or university*)?
78. What is the name, address, and phone number of your father?
79. Did he attend (*name of college or university*)?
80. Could you please give the name and phone number of at least three other people who would always know how to contact you?

	Name	Relationship	Phone Number
Person 1:			
Person 2:			

81. How Supportive is (PERSON 1) of your educational goals? Very unsupportive, somewhat unsupportive, neither supportive nor unsupportive, somewhat supportive, or very supportive? PERSON2?

82. Finally, we would like to update the information on your family's socioeconomic status. What is your parent or guardian's household income? In thinking about household income you should include the wages and salaries of all household members, plus any self-employment income they may have had, along with interest, dividends, alimony payments, social security, and pensions.

<\$20,000

\$20,000 - \$24,999

\$25,000 - \$34,999

\$35,000 - \$49,999

\$50,000 - \$74,999

\$75,000 - \$99,999

\$100,000 - \$124,999

\$125,000 - \$149,999

\$150,000 - \$174,999

\$175,000 - \$199,999

>\$200,000

## **Appendix E**

**NATIONAL LONGITUDINAL SURVEY OF FRESHMEN  
FOURTH WAVE INSTRUMENT FOR 2002  
SPRING TERM OF JUNIOR YEAR**  
November 2002

**Douglas S. Massey  
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### ***Principal Investigators***

**Supported by:**  
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**NATIONAL LONGITUDINAL SURVEY OF FRESHMEN  
FOURTH WAVE INSTRUMENT FOR 2001  
COMPUTER ASSISTED TELEPHONE INTERVIEW**

Thank you for agreeing to speak with us again. When we first interviewed you in the Fall of your first year in college we asked a lot of questions about how you grew up—your family background, the neighborhoods where you lived, and the schools you attended. During our subsequent telephone interviews we conducted the past two years in the Spring, we asked about your social and academic experiences in college. Now we'd like to catch up on your life since we last talked to you. As with the previous two Spring interviews, this conversation will be much shorter than the original Fall survey. Naturally, you are free to stop the interview at any time and can refuse to answer any questions. May I proceed? Then let's start with the basics.

1. Are you still enrolled as a student at *(name of college or university)*?

No (Answer Questions 2-6)

Yes (Go to Question 7)

**FOR RESPONDENTS NOT CURRENTLY ENROLLED AT SAME INSTITUTION**

2. How important were the following factors in your deciding to leave *(college or university)*? Very unimportant, somewhat unimportant, somewhat important, or very important?

High cost of education  
Too much debt  
Poor grades  
Courses too difficult  
Not enough course credits  
Poor teaching  
Classes too large  
Lack of interest  
Lack of effort  
Lack of friends  
Didn't fit in  
Family unsupportive  
Friends unsupportive  
Family responsibilities  
Campus racial/ethnic climate



3. Could you please tell me the department, number, title, and grade for each course you took during your **last completed term** at (*name of college or university*)? List Term: Fall 2000, Winter 2001, Spring 2001, or Fall 2001.

Final

Department	Number	Title	Grade
1.			
2.			
3.			
4.			
5.			
6.			

4. Are you currently enrolled in another college or university?  
Yes (specify: \_\_\_\_\_) Go to Question 7
5. What is the likelihood that you will re-enroll at some college or university in the next two years?  
Very Unlikely  
Somewhat Unlikely  
Somewhat Likely  
Very Likely
6. Are you currently working at a paid job?  
No (Skip to 75)  
Yes:  
a. What is your current job? \_\_\_\_\_  
b. What is your hourly wage? \_\_\_\_\_  
c. How many hours per week? \_\_\_\_\_ (Skip to 75)

#### ACADEMIC PROGRESS AT CURRENT INSTITUTION

7. During your final term as a sophomore last year (Spring 2001), how many courses did you register for? Include each course in which you originally registered, even if you later dropped it.

**Number of courses:** \_\_\_\_\_

8. Could you please tell me the department, number, and title for each course in which you registered during that term? In each case, please indicate whether you eventually dropped it, and if you completed it what your final grade was.

Department	Number	Title	Dropped?	Grade
1.				
2.				
3.				

- 4.
- 5.
- 6.

9. Is (*current college or university*) on a quarter or semester system?

Quarter \_\_\_\_ Semester \_\_\_\_

10. About what was the date that classes began at (*college or university*) this year?

**Date** \_\_\_\_\_

11. At the beginning of Fall Term 2001, how many courses did you register for? Include each course in which you originally registered, even if you later dropped it.

Number of courses: \_\_\_\_

12. Could you please tell me the department, number, and title for each course you registered in last Fall? In each case, please indicate whether you eventually dropped it, and if you completed it what your final grade was.

Department	Number	Title	Dropped?	Grade
1.				
2.				
3.				
4.				
5.				
6.				

13. **Quarter System Only:** At the beginning of Winter term, how many courses did you register for? Include each course in which you originally registered, even if you later dropped it.

Number of courses: \_\_\_\_

14. **Quarter System Only:** Could you please tell me the department, number, and title of each course you registered in during Winter Term? In each case, please indicate whether you eventually dropped it, and if you completed it what your final grade was.

Department	Number	Title	Dropped?	Grade
1.				
2.				
3.				
4.				
5.				

6.

15. At the beginning of Spring 2002 term, how many courses did you register for? Include each course in which you originally registered, even if you later dropped it.

Number of courses: \_\_\_\_

16. Could you please tell me the department, number, and title for each course you registered in last Fall? In each case, please indicate whether you are still registered and what grade you expect to earn.

<u>Department</u>	<u>Number</u>	<u>Title</u>	<u>Still</u> <u>Registered?</u>	<u>Expected</u> <u>Grade</u>
1.				
2.				
3.				
4.				
5.				
6.				

17. What is your major? \_\_\_\_\_

18. At this point in your college career, what is the highest degree you expect to obtain?

Less Than BA

BA or BS

MA or Equivalent (MBA, MPH, MSW, etc.)

Ph.D.

MD, LLD, or Equivalent

If MA or more specified, ask 18a. Else, skip to 19.

- 18a. In what area of study or field do you wish to obtain an advanced degree? (specify)

19. How would you characterize the degree of racial separation on campus?

(very little, slight, some, substantial, very substantial):

#### **SUMMER JOBS AND EMPLOYMENT**

I would now like to ask you some questions about your summer activities since entering college and your plans for this summer.

20. What did you do the summer after your first year in college? (can choose more than one)

a. Took classes on campus

- b. Took classes at another school
- c. Full-time job
- d. Part-time job
- e. Paid Internship (include summer research on campus)
- f. Unpaid internship
- g. Traveled
- h. Other (specify)

21. Did you have a job or internship last summer?

If yes,

- a. What type of job did you have?
- b. What was your job title?
- c. How much were you paid (w/option of not paid)
- d. How did you find out about the job?
  - a.) Responded to an ad (newspaper or internet)
  - b.) Career services at school
  - c.) Post resume on internet job matching site
  - d.) Job placement service (not school related)
  - e.) Parent or friends of the family
  - f.) Parents' coworker or boss
  - g.) Professor from college
  - h.) Friend from college
  - i.) Parent of a college friend
  - j.) Co-workers from a previous job
  - k.) Other (please specify)

**If a personal contact, responses e- j above, then ask the following**

- e. How often were you in direct contact with this person (either in person, by phone, or email) prior to getting the job?
  - a.) Almost every day
  - b.) A few times a week
  - c.) A few times a month
  - d.) Every few months
  - e.) A few times a year
  - f.) Once a year
  - g.) Never

22. Do you have a job or internship lined up for this summer? Yes/no

If no ask next question, if yes skip to 23

Are you planning to get a job or do an internship this summer? Yes/no

### LIVING ARRANGEMENTS

23. In which of the following do you presently live:

SKIP TO q29

- <1> an on-campus dormitory,
- <2> an off-campus dormitory,
- <3> an on-campus apartment,
- <4> an off-campus dormitory,
- <5> a (fraternity/sorority) house,
- <6> with your parents,
- <7> with another relative, or
- <s> what is your living arrangement?
- <8> on-campus house/co-op/apartment (Not a dorm)
- <9> off-campus house/co-op/apartment (Not a dorm)
- <77> Other unable to recode
- <98> Don't Know
- <97> Refused

If 6 or 7, skip to 29

24. Do you presently live in a "theme" dorm or apartment, such as one devoted to a foreign language or cultural orientation?

If yes: What is the theme or orientation? \_\_\_\_\_ **TAKE ANSWER AND CODE  
USING FOLLOWING CATEGORIES, OR ADD IF NECESSARY**

- <1> Academic Enhancement & Community Service
- <2> African American/WB Dubois Dorm
- <3> Asian/East Asian/Asian American
- <4> Athletics/Health/Physical Education/Sports
- <5> Communications
- <6> Diversity (cultural/inter-/multi-)/Multi-theme//Mosaic
- <7> Foreign Language (EXCEPT SPANISH)(French/German/Russian, etc)
- <8> Honors
- <9> Inter-sorority/Sorority
- <10> International
- <11> Latin American/SPANISH/Hispanic/Chicano
- <12> Native American
- <13> Performing Arts
- <14> Public Affairs/Public Policy/Urban Development
- <15> Science and Technology/Engineering
- <16> Substance Free
- <17> Women's/All-female
- <18> Men's/All-male
- <19> Freshman/First year initiative
- <20> Sophomore

OTHER- SPECIFY

- 25 With how many others do you share your dorm, apartment, or house

*IF IT'S A DORM, ASK ABOUT THE COMPOSITION OF THE HALL*

OTHERWISE, ASK OF THE ENTIRE DWELLING

Total Number: \_\_\_\_\_  
How many are white? \_\_\_\_\_  
How Many Are Asian? \_\_\_\_\_  
How Many Are Black?: \_\_\_\_\_  
How Many are Latino? \_\_\_\_\_

26. Is there someplace in your dorm, apartment, or house where you can be alone to read or study?  
27. In the dorm, apartment, or house where you now live, how often have the following things occurred? Never, sometimes, often, or very often?

I was trying to study but was distracted by talking or conversation  
I was trying to study but was distracted by someone playing a stereo  
I was trying to study but was distracted by someone watching TV  
I was trying to study but was distracted by friends partying  
I was trying to study but friends talked me into going out  
I had to leave home to get my schoolwork done  
I stayed late at the library to avoid going home  
I have conflicts with my roommate(s) or housemate(s)  
I felt lonely and homesick  
I felt like I just wanted to get away from campus for a while

28. Between the start of school in the Fall and the beginning of Christmas vacation, how many trips away from campus did you take? How many total days did you spend on these visits?

***USE OF TIME***

29. Now I want you to consider the last week, from Monday through Friday, on which classes were held at (*college or university*). Could you please estimate the total number of hours that you spent:

Attending class or lab?  
Studying or doing research?  
Meeting with professors?  
Doing extracurricular activities?

Watching television?  
 Using your computer (internet, email, chatting)?  
 Listening to music?  
 Reading/writing/drawing for pleasure?  
 Working for pay?  
 Doing volunteer work in community?  
 Playing or practicing sports?  
 Attending a sporting event?  
 Attending parties?  
 Socializing with friends (besides at parties)?  
 Sleeping?  
 Running errands/Grocery Shopping/Shopping/Appointments (non-academic)?  
 Eating?  
 Other: \_\_\_\_\_

30. Now, let's think about the most recent weekend between two weeks when classes were being held and you were on campus. Beginning on Saturday morning and continuing through Sunday night, about how many hours did you spend:

Attending class or lab?  
 Studying with other students?  
 Studying or doing research (alone)?  
 Meeting with professors?  
 Doing extracurricular activities?  
 Watching television?  
 Using your computer (internet, email, chatting)?  
 Listening to music?  
 Reading/writing/drawing for pleasure?  
 Working for pay?  
 Doing volunteer work in community?  
 Playing or practicing sports?  
 Attending a sporting event?  
 Attending parties?  
 Socializing with friends (besides at parties)?  
 Sleeping?  
 Running errands/Grocery Shopping/Shopping/Appointments (non-academic)?  
 Eating?  
 Other: \_\_\_\_\_

### ***Mentoring Questions***

Many people have someone in their lives, other than their parents or the person who raised them, who has been a role model, guide, and source of encouragement and inspiration. These people are often called

“mentors.” The next group of questions will explore whether there has been anyone like that in your life, who has guided and encouraged you with your schoolwork and education. When we first conducted this survey with you in 1999, we asked you about your experiences in high school. I’d like you to imagine right now that you are back at that time, at the time of your first interview, (as a senior in high school?).

31. Looking back over your four years in high school, was there anyone besides your parents or the person who raised you who served as a role model, guide, and source of encouragement and inspiration, in other words, a mentor?

(If no, skip to question 34)

I’d like you to think about the most significant mentor you had during that time.

- 32 a. What was this person’s primary relationship to you (pick one)?

- a.) mentor from a formal mentoring program
- b.) relative
- c.) neighbor
- d.) family friend
- e.) teacher
- f.) high school counselor
- g.) spiritual or religious leader
- h.) extracurricular or summer program staff
- i.) friend
- j.) employer
- k.) other (specify)

- b. What was your mentor’s gender?

- c. What was your mentor’s ethnicity or race?

White, Black/African American, Hispanic, Asian, Bi-Racial (specify), Other (specify)

- d. To the best of your knowledge, what is the highest level of education that your mentor has completed?

- e. To the best of your knowledge, what type of work does this person do?

33. On a scale of zero to 10, where zero indicates total disagreement and 10 indicates total agreement, how much do you agree or disagree with each of the following statements about your high school mentor?

- a. My mentor believed in me.
- b. My mentor made me believe in myself.
- c. My mentor gave me the confidence to attend college.
- d. My mentor exposed me to new activities.
- e. My mentor helped me with my schoolwork.
- f. My mentor taught me new skills.
- g. My mentor exposed me to new types of people.
- h. My mentor provided me with financial help.



34. Now, in college, is there anyone besides your parents or the person who raised you who serves as a mentor, that is, a role model, guide, and source of encouragement and inspiration?

***LIFE ON CAMPUS***

35. Many people are involved in some sort of activity or group while they are in college. Are you involved in any extracurricular groups or activities? If YES, continue, if NO go on to next section

I would like you to think about the two groups with which you are most involved. What are the names of these two groups?

GROUP1 \_\_\_\_\_

GROUP2 \_\_\_\_\_

(ask the following series of questions for each group)

A. What is the main function of this group?

(let respondent give response, then code into categories)

- a. Varsity or junior varsity sports
- b. Intramural sports or sports club
- c. social (fraternity or sorority)
- d. political/social awareness, including environmental (ex. NOW)
- e. social service outreach (ex. Habitat for humanity)
- f. career development group
- g. religious group
- h. music, arts, or theatre group?
- i. Foreign language group
- j. Race/ethnic interest
- k. Sex or gender issues
- l. Gay/lesbian/transgendered issues
- m. Other type of group (please list)
- n.

B. Of what race/ethnicity are most of the group's members?

C. How often do you interact with group members in a formal setting (group meetings, events, etc.)?

Every day

Almost every day

Once a week

A couple of times a month

Once a month

D. How often do you interact with group members informally (around the dorm, dining hall, just hanging out)?

*Intentionally left blank by NLSF team.*

Now I would like to ask you some questions about how you are doing at school.

36. On a scale of 0 to 10, where 0 indicates no effort at all and 10 indicates the maximum possible effort, how hard would you say you have been trying to succeed academically during the current year of college?

**Effort rating:** \_\_\_\_\_

37. How much do you agree or disagree with each of the following statements about college? Do you strongly disagree, disagree somewhat, neither agree nor disagree, agree somewhat, or strongly agree?

I am doing less well in college than I would like:

I am having problems with my financial aid:

I am having problems at home with a family member:

I have too little time to do school work:

I have too little time to do things in the community:

38. On a scale of 0 to 10, where 0 indicates no confidence at all and 10 indicates the maximum possible confidence, how much confidence would you say you have in your academic abilities?

**Confidence rating:** \_\_\_\_\_

39. Using the same scale, how much confidence do you have in your abilities in the following subjects?

English

History

Mathematics

Natural Sciences

Social Studies

Foreign Languages

### ***INTERFERING PROBLEMS***

40. Lots of things may happen in families to affect young people. Since we interviewed you last year, have any of the following happened within your family? (Indicate All That Apply)

My parents got divorced or separated

A parent lost a job

A member of my immediate family went on public assistance

A member of my immediate family was the victim of crime

A member of my immediate family got into trouble with the law  
A member of my immediate family became seriously ill or disabled  
A member of my immediate family died?  
A member of my extended family died?  
A close friend died?

#### FINANCIAL MATTERS

41. About how much money do you think you will need to attend college this academic year, including tuition, academic fees, room and board, and your daily expenses for living and entertainment?

Tuition  
Academic Fees  
Room and Board  
Daily Expenses  
Total Needed:

42. Of this total amount, how much will be funded from each of the following sources?

Parental contributions:  
Contributions from other family members:  
Grant or fellowship from university:  
Grant or fellowship from other funding agency:  
Student loan:  
Personal savings:  
Earnings from work/study job:  
Earnings from other work:  
Other source:

43. At any time during the current academic year have you held a job on which you worked for pay?

- If yes: Since the day that classes began last Fall, about how many weeks have you worked in total?
- If yes: During that time, about how many hours per week did you work, on average?
- If yes: How much do you earn per hour working at your job?
- If yes: Are you required to work as part of your school's financial aid package??
- If yes: Apart from financial aid requirements, do *you* feel it is necessary to work to finance your college education?

#### PERCEPTIONS OF PREJUDICE

Now I would like to ask you a few questions about your perceptions of race relations on campus during the current academic year. Since the beginning of the Fall Term:

- 44. Have you ever you ever felt uncomfortable or self-conscious in your classes because of your race or ethnicity? Never, rarely, sometimes, often, or very often?
- 45. Have you ever been made to feel uncomfortable or self-conscious walking around campus because of your race or ethnicity? Never, rarely, sometimes, often, or very often?
- 46. Have you ever heard derogatory remarks made about your racial or ethnic group on campus? Never, rarely, sometimes, often, or very often?
- 47. Have you ever experienced harassment from members of your own racial or ethnic group because you interacted or associated with members of some other group? Never, rarely, sometimes, often, or very often?
- 48. Have you ever felt you were given a bad grade by a professor because of your race or ethnicity? Never, rarely, sometimes, often, or very often?
- 49. Have you ever felt you were discouraged by a professor from speaking out in class or from a course of study because of your race or ethnicity? Never, rarely, sometimes, often, or very often?

**If respondent's race=white then skip to question 53**

- 50. CENTRALITY SCALE (on a scale from 0 to 10, with 0 indicating no agreement, 10 indicating complete agreement)
  - a. Overall, being [R's Race: Black, Latino, Asian] has very little to do with how I feel about myself
  - b. In general, being [R's Race: Black, Latino, Asian] is an important part of my self-image.
  - c. My destiny is tied to the destiny of other [R's Race: Black, Latino, Asian] people.
  - d. Being [R's Race: Black, Latino, Asian] is unimportant to my sense of what kind of person I am
  - e. I have a strong sense of belonging to [R's Race: Black, Latino, Asian] people
  - f. I have a strong attachment to other [R's Race: Black, Latino, Asian] people.
  - g. Being [R's Race: Black, Latino, Asian] is an important reflection of who I am.
  - h. Being [R's Race: Black, Latino, Asian] is not a major factor in my social relationship.
- 51. Assimilation Subscale (on a scale from 0 to 10, with 0 indicating no agreement, 10 indicating complete agreement)
  - a. [R's Race: Blacks, Latinos, Asians] who espouse separatism are as racist as White people who also espouse separatism.

- b. A sign of progress is that **[R's Race: Blacks, Latinos, Asians]** are in the mainstream of America more than ever before.
  - c. Because America is predominantly White, it is important that **[R's Race: Blacks, Latinos, Asians]** go to White schools so that they can gain experience interacting with Whites.
  - d. **[R's Race: Blacks, Latinos, Asians]** should strive to be full members of the American political system.
  - e. **[R's Race: Blacks, Latinos, Asians]** should try to work within the system to achieve their political and economic goals
  - f. **[R's Race: Blacks, Latinos, Asians]** should strive to integrate all institutions which are segregated.
  - g. **[R's Race: Blacks, Latinos, Asians]** should feel free to interact socially with White people.
  - h. **[R's Race: Blacks, Latinos, Asians]** should view themselves as being Americans first and foremost.
  - i. The plight of **[R's Race: Blacks, Latinos, Asians]** in America will improve only when (black, Latino, Asian)s are in important positions within the system.
52. Nationalist Subscale (on a scale from 0 to 10, with 0 indicating no agreement, 10 indicating complete agreement)
- a. It is important for **[R's Race: Black, Latino, Asian]** people to surround their children with Black art, music and literature.
  - ~~b.~~ **[R's Race: Black, Latino, Asian]** people should not marry interracially.-
  - c. **For Blacks: Blacks** would be better off if they adopted **Afrocentric** values, that is traditional customs and beliefs specific to people of **African** descent.
  - For Latino/Asian: [R's Race: Latinos, Asians]** would be better off if they adopted traditional customs and beliefs specific to people of **[R's Race: Latino, Asian]** descent.
  - d. **[R's Race: Black, Latino, Asian]** students are better off going to schools that **are controlled and organized by [R's Race: Blacks, Latinos, Asians];**
  - e. **[R's Race: Black, Latino, Asian]** people must organize themselves into a separate **[R's Race: Blacks, Latinos, Asians]** political force.
  - ~~f.~~ Whenever possible, **[R's Race: Blacks, Latinos, Asians]** should buy from other Black businesses.
  - g. A thorough knowledge of **[R's Race: Black, Latino, Asian]** history is very important for **[R's Race: Blacks, Latinos, Asians]** today.
  - h. **[R's Race: Blacks, Latinos, Asians]** and Whites can never live in true harmony because of racial differences.
  - i. White people can never be trusted where **[R's Race: Blacks, Latinos, Asians]** are concerned.

### **ROMANTIC RELATIONSHIPS**

53. Have been on any dates since the school year began?

If yes, how many dates have you been on?

How many of these dates have been with people whom you have met on campus?

Have you dated anyone outside of your race/ethnic group?

If yes, what other group members have you dated?

Whites?

Blacks?

Hispanics?

Asians?

Other? Specify: \_\_\_\_\_

54. **If R reports dates with a partner in another group:** have you suffered negative reactions because you dated another racial or ethnic group? Never, sometimes, often, or very often?

From friends or acquaintances in your own group?

From family members?

From strangers of own group?

From strangers in partner's group?

From other strangers?

55 .Do you currently have a steady romantic partner?

Did you meet this person on campus?

Is this person a different race/ethnicity than you?

If yes, what is your partner's race or ethnicity?

White?

Black?

Hispanic?

Asian?

Other? Specify: \_\_\_\_\_

### **PERSONAL HEALTH**

We would now like to ask you some questions about your health.

56. In general, how is your health? Would you say (1) excellent, (2) very good, (3) good, (2) fair, or (1) poor?

57. Has there been any time over the past year when you thought you should get medical care, but you did not? (Yes/ no )

if **yes** ask the following



What kept you from seeing a health professional when you really needed to?

**If there was more than one reason, choose more than one answer.**

(1=marked, 0=not marked)

- a. Didn't know whom to go see
- b. Had no transportation
- c. No one available to go along
- d. Parent or guardian would not go
- e. Didn't want parents to know
- f. Difficult to make appointment
- g. Afraid of what the doctor would say or do
- h. Thought the problem would go away
- i. Couldn't pay
- j. Concerns about student health
- k. other

58. In the last month, how often did a health or emotional problem cause you to miss a day of school? (0=never, 1=just a few times, 2=about once a week, 3= almost every day, 4=everyday)

59. In the last month, how often did a health or emotional problem cause you to miss a social or recreational activity? (0=never, 1=just a few times, 2=about once a week, 3= almost every day, 4=everyday)

60. What is your height in feet and inches?

61. What is your weight in pounds?

#### **MENTAL HEALTH**

62. These questions will ask you about how you feel emotionally and about how you feel in general. How often was each of the following things true during the past week? (0=never or rarely, 1=sometimes, 2=a lot of the time, 3=most of the time or 4=all of the time)

- a. You were bothered by things that usually don't bother you.
- b. You didn't feel like eating, your appetite was poor.
- c. you felt that you could not shake off the blues, even with help from your family and your friends.
- d. You felt like you were just as good as other people
- e. You had trouble keeping your mind on what you were doing
- f. You felt depressed
- g. You felt that you were too tired to do things
- h. You felt hopeful about the future
- i. You thought your life had been a failure
- j. You felt fearful
- k. You were happy
- l. You talked less than usual
- m. You felt lonely

- n. People were unfriendly to you.
- o. You enjoyed life.
- p. You felt sad.
- q. You felt that people disliked you
- r. It was hard to get started doing things
- s. You felt life was not worth living

#### TRACKING INFORMATION

In closing, we would like to update your contact information.

63. What is your current telephone number?"

64. What is the name, address, and phone number of your mother?

65. What is the name, address, and phone number of your father?

66. Could you please give the name and phone number of at least three other people who would always know how to contact you?

Name	Relationship	Phone Number
Person 1:		
Person 2:		
Person 3:		

## **Appendix F**

**NATIONAL LONGITUDINAL SURVEY OF FRESHMEN  
FIFTH WAVE INSTRUMENT FOR 2003  
SPRING TERM OF SENIOR YEAR**  
November 2002

**Douglas S. Massey  
Camille Z. Charles  
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### ***Principal Investigators***

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**NATIONAL LONGITUDINAL SURVEY OF FRESHMEN  
FIFTH WAVE INSTRUMENT FOR 2003  
COMPUTER ASSISTED TELEPHONE INTERVIEW**

Thank you for agreeing to speak with us again. As always, you are free to stop the interview at any time and can refuse to answer any questions. Let's get started.

1. Are you still enrolled as a student at (*name of college or university*)?

No- Graduated (Answer Questions 3-6)  
No- Left for other reason (Answer Questions 2-6)  
Yes (Skip to Question 7\*\*)

**FOR RESPONDENTS NOT CURRENTLY ENROLLED AT SAME INSTITUTION**

2. How important were the following factors in your deciding to leave (*college or university*)? Very unimportant, somewhat unimportant, somewhat important, or very important?

High cost of education  
Too much debt  
Poor grades  
Courses too difficult  
Not enough course credits  
Poor teaching  
Classes too large  
Lack of interest  
Lack of effort  
Lack of friends  
Didn't fit in  
Family unsupportive  
Friends unsupportive  
Family responsibilities  
Campus racial/ethnic climate

3. Could you please tell me the department, number, title, and grade for each course you took during your **last completed term** at (*name of college or university*)? List Term: Fall 2000, Winter 2001, Spring 2001, or Fall 2001, Winter 2002, Spring 2002, Fall 2002.

Department	Number	Title	Grade
1.			
2.			
3.			
4.			
5.			
6.			

4. Are you currently enrolled in another college or university?  
Yes (specify: \_\_\_\_\_) Skip to Question 7\*\*
5. On a scale of 0 to 10, where zero indicates no chance at all and 10 indicates complete certainty, what is the likelihood that you will re-enroll at some college or university in the next two years?
6. Are you currently working at a paid job?  
No (Skip to Question 113\*\*)
  - Yes:
    - a. What is your current job?
    - b. What is your hourly wage?
    - c. How many hours per week?

Go to Question 113\*\*

#### ACADEMIC PROGRESS AT CURRENT INSTITUTION

7. During the Spring Term of 2002, how many courses did you register for? Include each course in which you originally registered, even if you later dropped it.  
  
Number of courses: \_\_\_\_
8. Could you please tell me the department, number, and title for each course in which you registered during that term? In each case, please indicate whether you eventually dropped it, and if you completed it what your final grade was.  
  

Department	Number	Title	Dropped?	Grade
1.				
2.				
3.				
4.				
5.				
6.				
9. Is (current college or university) on a quarter or semester system?  
  
Quarter \_\_\_\_ Semester \_\_\_\_
10. About what was the date that classes began at (college or university) this year?  
Date \_\_\_\_\_
11. At the beginning of Fall Term 2002, how many courses did you register for? Include each course in which you originally registered, even if you later dropped it.  
Number of courses: \_\_\_\_

12. Could you please tell me the department, number, and title for each course you registered in during the Fall of 2002? In each case, please indicate whether you eventually dropped it, and if you completed it what your final grade was.

Department	Number	Title	Dropped?	Grade
1.				
2.				
3.				
4.				
5.				
6.				

13. **Quarter System Only:** At the beginning of Winter term 2003, how many courses did you register for? Include each course in which you originally registered, even if you later dropped it.

Number of courses: \_\_\_\_

14. **Quarter System Only:** Could you please tell me the department, number, and title of each course you registered in during Winter Term 2003? In each case, please indicate whether you eventually dropped it, and if you completed it what your final grade was.

Department	Number	Title	Dropped?	Grade
1.				
2.				
3.				
4.				
5.				
6.				

15. At the beginning of Spring 2002 term, how many courses did you register for? Include each course in which you originally registered, even if you later dropped it.

Number of courses: \_\_\_\_

16. Could you please tell me the department, number, and title for each course you registered in last Fall? In each case, please indicate whether you are still registered and what grade you expect to earn.

<u>Department</u>	<u>Still Number</u>	<u>Expected Title</u>	<u>Registered?</u>	<u>Grade</u>
1.				
2.				
3.				
4.				
5.				
6.				

17. What is your major? (Probe: what else?) Major 1: \_\_\_\_\_  
 Major 2: \_\_\_\_\_  
 Major 3: \_\_\_\_\_  
 Major 4: \_\_\_\_\_
18. How many times, if ever, have you changed majors?
19. What is your cumulative grade point average at (*college or university*)? (For current school)
20. What is your cumulative grade point average in your major(s)?  
 GPA in Major 1: \_\_\_\_\_  
 GPA in Major 2: \_\_\_\_\_  
 GPA in Major 3: \_\_\_\_\_
21. Many students choose to minor in something. Did you have a minor? If yes:  
 Minor 1 \_\_\_\_\_  
 Minor 2 \_\_\_\_\_  
 Minor 3 \_\_\_\_\_  
 Minor 4 \_\_\_\_\_
22. How many times, if any, have you studied abroad?
23. Not counting summers, in the past four years have you ever taken time off from your studies and not attended school? For how many terms?
24. In the past four years, how many courses, if any, have you taken during the summer?
25. On a scale of 0 to 10, where 0 indicates no effort at all and 10 indicates the maximum possible effort, how hard would you say you have been trying to succeed academically during the current year of college?

#### **PAST SUMMER JOBS**

26. Did you have a job or internship last summer? If yes, ask:
- What type of job did you have?
  - What was your job title?
  - How much were you paid (w/option of not paid)
  - How did you find out about the job?
    - Responded to an ad (newspaper or internet)
    - Career services at school
    - Post resume on internet job matching site
    - Job placement service (not school related)
    - Parent or friends of the family
    - Parents' coworker or boss
    - Professor from college

- h.) Friend from college
- i.) Parent of a college friend
- j.) Co-workers from a previous job
- k.) Other (please specify)

#### **DISTRACTIONS**

27. Lots of things may happen in families to affect people your age and distract them from their studies. Since we interviewed you last year, have any of the following happened within your family? (Indicate All That Apply)
- My parents got divorced or separated
  - A parent lost a job
  - A member of my immediate family went on public assistance
  - A member of my immediate family was the victim of crime
  - A member of my immediate family got into trouble with the law
  - A member of my immediate family became seriously ill or disabled
  - A member of my immediate family died?
  - A member of my extended family died?
  - A close friend died?
28. Sometimes the requirements of a job can conflict with the demands of course work or studying. At any time during the current academic year have you held a job on which you worked for pay? If yes then ask:
- a. Since the day that classes began last Fall, about how many weeks have you worked in total?
  - b. During that time, about how many hours per week did you work, on average?
  - c. How much do you earn per hour working at your job?
  - d. Are you required to work as part of your school's financial aid package??
  - e. Apart from financial aid requirements, do *you* feel it is necessary to work to finance your college education?
29. A problem that students often encounter in college is the debt they incur to pay for their education. Right now, what is the total amount you or your parents have borrowed from any lender to attend college or university?
- Amount: \_\_\_\_\_ If nonzero then ask:
- a. How much of this amount do you or your parents still owe?
  - b. Do you expect to receive any help in paying back what you or your parents owe?  
If yes, from whom: (SPECIFY)
  - c. How concerned are you about the amount of money you or your parents owe? Not concerned at all, somewhat concerned, neither concerned nor unconcerned, very concerned, or extremely concerned?
  - d. On a scale of 0 to 10, where 0 means not at all and 10 means very much, to what extent does the amount you or your parents owe affect planning for life after college?



30.
  - a. How many credit cards do you, by yourself, have?
  - b. What is the total amount that you owe on all cards?
  - c. How much do you pay each month to credit card companies?
  - d. Who, if anyone, helps you to pay these bills? (SPECIFY)
31. Do you currently have a steady romantic partner? If yes then ask:
  - a. Did you meet this person on campus?
  - b. Is this person a different race/ethnicity than you?
  - c. If yes, what is your partner's race or ethnicity?
    - White?
    - Black?
    - Hispanic?
    - Asian?
    - Other? Specify:
  - d. Is this person a spouse? If yes, skip to 33
32. Since the beginning of the Fall Term 2002 have you been on any dates? If yes then ask:
  - a. How many dates have you been on?
  - b. How many of these dates have been with people whom you have met on campus?
  - c. Have you dated anyone outside of your race/ethnic group?
  - d. If yes, what other group members have you dated?
    - Whites?
    - Blacks?
    - Hispanics?
    - Asians?
    - Other? Specify: \_\_\_\_\_
33. In general, would you say your health is: poor, fair, good, very good, or excellent?
34. What is your height in feet and inches?
35. What is your weight in pounds?
36. In the last month, how often did a health or emotional problem cause you to miss a day of school?  
(0=never, 1=just a few times, 2=about once a week, 3= almost every day, 4=every day)
37. In the last month, how often did a health or emotional problem cause you to miss a social or recreational activity? (0=never, 1=just a few times, 2=about once a week, 3= almost every day, 4=every day)
38. Since September, how many times have you sought medical treatment for a physical ailment or sickness?

39. Since September, how many times have you sought counseling for emotional distress or a mental problem?
40. Now I want to ask you about how you feel emotionally and about how you feel in general. How often was each of the following things true during the past week? (0=never, 1=rarely, 2=sometimes, 3=a lot of the time, 4=most of the time or 5=all of the time)
- You were bothered by things that usually don't bother you.
  - You felt that you could not shake off the blues, even with help from family and friends.
  - You had trouble keeping your mind on what you were doing
  - You felt depressed
  - You felt hopeful about the future
  - You thought your life had been a failure
  - You were happy
  - You talked less than usual
  - You felt lonely
  - You enjoyed life.
  - You felt sad.
  - You felt that people disliked you
  - It was hard to get started doing things
41. On a 0 to 10 scale where 0 indicates total disagreement and 10 total agreement, to what extent would you disagree or agree with the following statements:
- If I had it to do all over again, I would choose to attend (*current college or university*).
  - My college experience has made me a better person
  - My college experience has made me more tolerant of other racial and ethnic groups.
  - My college experience has improved my relationships with other racial and ethnic groups.
  - I am very satisfied with the friends and acquaintances I made at college.
  - My college experiences have prepared me for the future.
  - College has given me a sense of mastery of the subjects I studied.
  - College has better prepared me to deal with the real world.
  - I am satisfied with the courses I took at college.
  - I am satisfied with the professors I had at college.
  - I am satisfied with the quality of instruction I received at college.
  - I would recommend (*current college or university*) to a friend or relative as a place to attend college.
  - I am likely to contribute to (*current college or university*)'s future fund raising efforts.
42. On a scale of 0 to 10, where 0 indicates no importance and 10 indicates the greatest importance, how important have each of the following been in guiding you through your college career:
- Professors in major courses
  - Professors in general

- c. Major advisor
  - d. Freshman advisor
  - e. Financial aid advisor
  - f. Career counselors
  - g. Resident advisors
  - h. Friends met at college
  - i. Friends from outside of college
  - j. Family members
43. Using a 0 to 10 scale, where 0 indicates never and 10 indicates always, how often would you say you procrastinated in completing the following tasks as a college student?
- a. Writing term papers
  - b. Studying for exams
  - c. Doing weekly reading assignments
  - d. Doing problem sets
  - e. Meeting with a professor
- If all=zero then skip to q 45**
44. Thinking about all the times you have put off tasks , appointments, or deadlines in the past few years, on a 0 to 10 scale how important are each of the following reasons for your procrastination?
- a. Anxiety about being evaluated
  - b. Perfectionism
  - c. Don't like to make decisions
  - d. Didn't know who to ask for help or advice
  - e. Fear of failing
  - f. Fear of success
  - g. Laziness
  - h. Lack of self-confidence
  - i. Dislike of task
  - j. Difficulty managing time
  - k. Other activities more attractive
  - l. Afraid of risks
  - m. Friends influenced me
45. On a 0 to 10 scale where 0 indicates total disagreement and 10 total agreement, to what extent would you disagree or agree with the following statements about the relative benefits of a college education:
- a. Sometimes I think the cost of a college degree outweighs the benefits for me.
  - b. My going to college has led to the loss of some of my friends
  - c. My going to college has made me feel less a part of my family.
  - d. My going to college has made me an outsider in my home community
  - e. My education makes people think I have answers when I don't
  - f. Other people of my race or ethnicity resent my going to college

## PLANS FOR THE FUTURE

### Graduation

46. Do you plan to complete or have you completed the academic requirements to graduate at the end of Spring 2003?  
If answer is yes then skip to 51\*\*  
If answer is no, then continue
47. What is your expected date of graduation? (month and year)
48. For someone with your major at (*current college or university*), how many credits are needed to graduate?
49. By the end of Spring 2003, how many credits will you have completed?
50. In academic year 2003-2004 do you plan to attend school full time, part time, or not at all?

### Plans for Summer

51. During twelve weeks of June, July, and August of 2003 about how many weeks do you expect to devote to each of the following activities:  
Leisure or vacation?  
Full-time or part-time work?  
Internship in for-profit organization?  
Internship in non-profit organization?  
Volunteering in community?  
Training, education, or study, either full or part time?

### Employment

52. In the Fall of 2003 do you plan to be working full time, part time, or not at all?  
If not at all skip to 65\*\*  
If full or part time then continue
53. What is the title of the occupation you expect to hold next Fall? (code using BLS occupational codes)
54. In what industry do you expect to be working next Fall? (code using BLS industry codes)
55. How many hours per week do you expect to work at this job?
56. How much do you expect to be earning on this job? (Take units)
57. Do you view this job as a step towards a career you wish to have?

If no skip to 65\*\*  
If yes then continue

58. What career is that?
59. Please indicate whether the following people or experiences have been important in leading you to want this career? (Yes/ No)
- a. Internship with off-campus organization
  - b. Research experience with professor
  - c. Classroom experience with professor
  - d. Independent study with professor
  - e. Extracurricular experience in college
  - f. Volunteer experience in community
  - g. Teaching or tutoring experience
  - h. Parental preferences
  - i. Preferences of other relatives
  - j. Advice from campus career counselor
  - k. College peer pressure
  - l. Prior job or work experience
60. On a scale of 0 to 10 where 0 indicates no importance and 10 indicates maximum importance, how important were each of the following in finding out about the job where you plan to work next Fall? (Free Response: SPECIFY)

#### Advanced Study

61. At this point in your college career, what is the highest degree you expect to obtain?
- Less Than BA
  - BA or BS
  - MA or Equivalent (MBA, MPH, MSW, etc.)
  - Ph.D.
  - MD, LLD, or Equivalent
62. Do you plan to attend graduate or professional school sometime in the next five years?
- If no then skip to 72\*\*
- If yes then continue
63. In what field of study do you plan to continue your education?
64. To how many graduate or professional schools have you applied?
- If zero skip to 67\*\*
- If 63=1 then 67a should read “were you accepted?” and then skip to 65**
- a. At how many graduate or professional schools were you accepted?
  - b. From how many schools have you not yet heard?
- If 64 a=none, then skip to 67**

65. Have you decided to accept an offer of admission to graduate or professional school in the Fall of 2003?  
 If no then skip to 67\*\*  
 If yes then
- Name of college or university:
  - What is the highest degree you seek to earn from {School 65a)?
  - How many years do you expect to take to earn this degree?
66. Of the total cost for your graduate or professional schooling, what percent will be funded by the following source?
- Personal savings
  - Parental contributions
  - Parental loans
  - Contributions from other relatives
  - Loans from other relatives
  - Bank loans/student loans
  - Scholarship or fellowship
  - Full or part time work
67. Please indicate whether the following people or experiences have been important in leading you to pursue this field of study? (Yes/ No)
- Internship with off-campus organization
  - Research experience with professor
  - Classroom experience with professor
  - Independent study with professor
  - Extracurricular experience in college
  - Volunteer experience in community
  - Teaching or tutoring experience
  - Parental preferences
  - Preferences of other relatives
  - Advice from campus career counselor
  - College peer pressure
  - Prior job/internship experience

#### **Other Future Activities**

68. Beginning in the Fall of 2003 do you expect to participate either full or part time in a voluntary organizations? **If yes, specify the organization.**

#### **FRIENDS**

69. Now I would like to you think of the four people at {SCHOOL} with whom you have been closest to at your college during your college years. (take names, then ask the following questions for each person)

Person 1: Gender person 1. If not obvious, ask: is PERSON 1 male or female?

Person 2:

Person 3:

Person 4:

74. Do for Person 1 to Person 4:
- How long have you known X?
  - Where did you meet person X?  
**Specify**
  - Is person x white, black, Latino, Asian, something else (specify)?

#### **RACIAL ATTITUDES AND IDENTITY**

75. To what extent do you think that what happens to other members of your own racial and ethnic group will affect what happens to you in your life: not at all, a little, somewhat, or a lot?

**The following questions (76- 77 ) should be asked only of Asians, Latinos, and blacks with reference to their own group.**

76. **For Blacks ask this variant:**

What do you think should be more important to blacks in the United States, being black, being American, or should both identities be equally important?

**For Latino's and Asian's ask this variant:**

What do you think should be most important for (*Latinos or Asians*) such as (*Mexicans or the Chinese*), doing you think it should be more important for them to be (*Mexican, Chinese*), American, or should both identities be equally important?

77. On a scale of 0 to 10, please indicate the extent you agree with each of the following statements, where 0 means total disagreement and 100 indicates total agreement. (where X= respondent's major group) **ask only of blacks, Latino's and Asians with regard to their own group**

X's should vote only for candidates who are X.

X women should only date X men.

X men should only date X women.

X people should only marry other X's.

X consumers should shop in X-owned stores

X children should have mostly X friends.

X students should attend predominantly X schools.

X families should live in predominantly X neighborhoods

78. On a scale of 0 to 10, where 0 means very distant and 10 means very close, how close do you feel to whites in term of your ideas and feelings about things?

Whites  
Blacks  
Latinos  
Asians

Poor whites  
Poor blacks  
Poor Latinos  
Poor Asians

Middle-class whites  
Middle-class blacks  
Middle-class Latinos  
Middle-class Asians

Rich whites  
Rich blacks  
Rich Latinos  
Rich Asians

Whites who benefit from Legacy Admissions  
African Americans who benefit from Affirmative Action  
Hispanics or Latinos who benefit from Affirmative Action

White students at (*college or university*)  
African American students at (*college or university*)  
Hispanic or Latino students at (*college or university*)  
Asian students at (*college or university*)

79. Now I would like to rate each racial or ethnic group on a seven-point scale on which the characteristics of people in a group can be rated. In the first statement, a score of 1 means that you think almost all of the people in that group are “rich”. A score of 7 means that you think that almost everyone in the group is “poor”. A score of 4 means you think that the group is not towards one end or the other, and, of course, you may choose any number in between that comes closest to where you think people in the group stand.

Where would you rate whites on this scale, where 1 means they tend to be rich and 7 means they tend to be poor?:

Asians?  
Blacks?  
Latinos?

80. Next, for each group I want to know whether you think they tend to be lazy or hardworking. A score of 1 means that you think almost all of the people in that group are “hard-working”. A score of 7 means that you think almost everyone in the group is “lazy”. A score of 4 means you think



that the group is not towards one end or the other, and, of course, you may choose any number in between that comes closest to where you think people in the group stand.

Where would you rate whites on this scale, where 1 means tends to be hard working and 7 means they tend to be lazy?

Asians?  
Blacks?  
Latinos?

81. Where would you rate whites on a scale, where 1 means tends to be intelligent and 7 means tends to be unintelligent?

Asians?  
Blacks?  
Latinos?

82. Where would you rate whites on this scale, where 1 means tends to prefer to be self-supporting and 7 means tends to prefer to live off welfare?

Asians?  
Blacks?  
Latinos?

83. Where would you rate whites on this scale, where 1 means to be easy to get along with and 7 means tends to be hard to get along with?

Asians?  
Blacks?  
Latinos?

- 84.

Where would you rate whites on this scale, where 1 means tends to stick with a task until the end and means tends to give up easily.

Asians?  
Blacks?  
Latinos?

85. Where would you rate whites on this scale, where 1 means tends to treat members of other groups equal and 7 tends to discriminate against members of other groups.

Asians?  
blacks?  
Latinos?

86. I am now going to read some statements about various situations that affect people in the United States. On a scale of 0 to 10, tell me how much you disagree or agree. If you completely disagree, say 0; if you completely agree, say 10; and if you are neutral, say 5. Feel free to use any number

between 0 and 10.

- a. Many blacks have only themselves to blame for not doing better in life. If they tried harder, they would do better.
- b. When two qualified people, one black and one white, are considered for the same job, the black won't get the job no matter how hard he or she tries.
- c. The best way to overcome discrimination is for each individual black person to be even better trained and more qualified than the most qualified white person.
- d. Many Latino have only themselves to blame for not doing better in life. If they tried harder, they would do better.
- e. When two qualified people, one Latino and one white, are considered for the same job, the Latino won't get the job no matter how hard he or she tries.
- f. The best way to overcome discrimination is for each individual Latino person to be even better trained and more qualified than the most qualified white person.
- g. Many Asian have only themselves to blame for not doing better in life. If they tried harder, they would do better.
- h. When two qualified people, one Asian and one white, are considered for the same job, the Asian won't get the job no matter how hard he or she tries.
- i. The best way to overcome discrimination is for each individual Asian person to be even better trained and more qualified than the most qualified white person.

87. Use a scale of 0 to 10, where 0 indicates total disagreement and 10 indicates total agreement, how much do you disagree or agree with the following statements:

I don't want to look foolish or stupid in class

If I don't do well, people will look down on others like me.

If I am having trouble with course material, other students probably are as well.

If I let my instructors know that I am having difficulty in class, they will think less of me.

If I let other students know that I am having difficulty in class, they will think less of me.

If instructors hold negative stereotypes about certain groups, it will not affect their evaluations of individual students from that group.

If other students hold negative stereotypes about certain groups, it will not affect their evaluations of individual students from that group.

If I excel academically, it reflects positively on my racial or ethnic group.

If I do poorly academically, it reflects negatively on my racial or ethnic group.

88. On a scale of 0 to 10, where 0 indicates no interaction at all and 10 indicates a great deal of interaction, how much interaction have you had over the past four years with members of the following groups:
- Whites
  - Blacks or African Americans
  - Latinos or Hispanics
  - Asians
89. Using a 0 to 10 scale where 0 stands for very poor and 10 for excellent, how would you describe the following intergroup relations among students on (*school*)'s campus?
- Whites and blacks
  - Whites and Latinos
  - Whites and Asians
  - Blacks and Latinos
  - Blacks and Asians
  - Latinos and Asians
90. On a scale of 0 to 10 where 0 indicates you strongly disagree and 10 indicates you strongly agree, to what extent do you disagree or agree with the following statements.
- Affirmative action has lowered academic standards on (schools) campus
  - White students are visible on campus
  - Black students are visible on campus.
  - Asian students are visible on campus
  - Latino students are visible on campus
91. How do you see (*college or university*)'s commitment to racial and ethnic diversity on campus? Is diversity emphasized way too little, somewhat too little, just enough, somewhat too much, or way to much?

## TRACKING INFORMATION

In closing, we would like to update your contact information.

92. What is your current telephone number?"
- a. What is your permanent telephone number?
- b. At what other number can you be reached?
93. What is the name, address, and phone number of your mother?
94. What is the name, address, and phone number of your father?
95. Please give the name and phone number and email address of at least two other people who would always know how to contact you?

	Name	Relationship	Phone Number	Email
Person 1:				
Person 2:				

96. What is your current primary email address?
97. At what other email addresses can you be reached?
- Address 1:
- Address 2:
- Address 3:

To what address should we mail your \$20 U.S. Postal money order?

Address Line 1  
Address Line 2  
Box or Apt #  
City  
State  
Zip

Your money order should arrive in 2 to 3 weeks. With proper ID, you may cash it free of charge at any post office. IF you have any questions you may contact Yvonne Shands toll-free at 1-800-82?-5477 weekdays between 9:00 am and 4 pm EST. Thank you.

## References

- Acker-Ball, S. L. (2007). *A case study of the influence of family on first-generation college students' educational aspirations post high school* (Doctoral dissertation). Retrieved from <http://drum.lib.umd.edu/handle/1903/7708>
- ACT. (1999). *ACT National Score Report, 1999*. Iowa City, IA: Author. Retrieved from <http://www.act.org/newsroom/data/1999/99data.html>
- Adelman, C. (2006). *The toolbox revisited: Paths to degree completion from high school through college*. Washington, DC: U.S. Department of Education Office of Vocational and Adult Education. Retrieved from <http://www2.ed.gov/rschstat/research/pubs/toolboxrevisit/toolbox.pdf>
- Allison, P. D. (2008, March). *Convergence failures in logistic regression*. Paper presented at the SAS Global Forum, San Antonio, TX. Retrieved from <http://www2.sas.com/proceedings/forum2008/360-2008.pdf>
- Altman, M., Gill, J., & McDonald, M. (2004). *Numerical issues in statistical computing for the social scientist*. Indianapolis, IN: John Wiley & Sons.
- Amelink, C. (2005). *Predicting academic success among first-year, first-generation students* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3164092)
- Andres, L., Adamuti-Trache, M., Yoon, E., Pidgeon, M., & Thomsen, J. (2007). Educational expectations, parental social class, gender, and postsecondary attainment: A 10-year perspective. *Youth & Society*, 39, 135-163.
- antonio, a. l. (2004). The influence of friendship groups on intellectual self-confidence and educational aspirations in college. *Journal of Higher Education*, 75, 446-471.

- Asrat, D. (2007, June). *First-generation student engagement in effective educational practices at a four-year public university*. Paper presented at the Annual Forum of the Association of Institutional Research, Kansas City, MO. Retrieved from <http://www.airweb.org/forum07/124.pdf>
- Astin, A. (1970). The methodology of research on college impact, part one. *Sociology of Education, 43*, 223-254.
- Astin, A. W. (1984). Student involvement: A developmental theory for higher education. *Journal of College Student Personnel, 25*, 297-308.
- Astin, A.W. (1991). *Assessment for excellence: The philosophy and practice of assessment and evaluation in higher education*. Westport, CT: Greenwood Publishing Group.
- Astin, A.W. (1993). *What matters in college? Four critical years revisited*. San Francisco, CA: Jossey-Bass.
- Astin, A.W. (1996). Involvement in learning revisited: Lessons we have learned. *Journal of College Student Development, 37*, 123-134.
- Astin, A. W., & Denson, N. (2009). Multi-campus studies of college impact: Which statistical method is appropriate? *Research in Higher Education, 50*, 354-367.
- Astin, A. W., & Oseguera, L. (2004). The declining “equity” of American higher education. *The Review of Higher Education, 27*, 321-341.
- Astin, A. W., & Oseguera, L. (2005). Pre-college and institutional influences on degree attainment. In A. Seidman (Ed.), *College student retention: Formula for student success* (pp. 245-276). Westport, CT: American Council on Education and Praeger Publishing.

- Attinasi, L. C. (1989). Getting in: Mexican Americans' perceptions of university attendance and the implications for freshman year persistence. *The Journal of Higher Education*, 60, 247-277.
- Baker, C. N. (2008). Under-represented college students and extracurricular involvement: the effects of various student organizations on academic performance. *Social Psychology of Education*, 11, 273-298.
- Baker, V. L., & Griffin, K. A. (2010). Beyond mentoring and advising: Toward understanding the role of faculty 'developers' in student success. *About Campus* 14(6), 2- 8.
- Bank, B. J., Slavings, R. L., & Biddle, B. J. (1990). Effects of peer, faculty, and parental influences on student persistence. *Sociology of Education*, 63, 208-225.
- Barnett, E. (2006). *Validation experiences and persistence among urban community college students*. (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3250210)
- Baum, S., Ma, J., & Payea, K. (2010). *Education pays 2010: The benefits of higher education for individuals and society*. Washington, DC: The College Board.  
Retrieved from  
[http://trends.collegeboard.org/downloads/Education\\_Pays\\_2010.pdf](http://trends.collegeboard.org/downloads/Education_Pays_2010.pdf)
- Beach, J. M. (2007). The ideology of the American dream: Two competing philosophies in education, 1776-2006. *Educational Studies*, 41, 148-164.
- Bean, J. P. (1985). Interaction effects based on class level in an explanatory model of college student dropout syndrome. *American Educational Research Journal*, 22, 35-64.

- Bean, J. P. (2005). Nine themes of college student retention. In A. Seidman (Ed.), *College student retention: Formula for student success* (pp. 215-244). Westport, CT: American Council on Education and Praeger Publishing.
- Bean, J. P., & Metzner, B. S. (1985). A conceptual model of nontraditional undergraduate student attrition. *Review of Educational Research*, 55, 485-540.
- Bedsworth, W., Colby, S., & Doctor, J. (2006). *Reclaiming the American dream*. New York, NY: The Bridgespan Group. Retrieved from <http://www.bridgespan.org/LearningCenter/ResourceDetail.aspx?id=412>
- Berger, J. B. (2000). Optimizing capital, social reproduction, and undergraduate persistence. In J. M. Braxton (Ed.), *Reworking the student departure puzzle* (pp. 95-126). Nashville, TN: Vanderbilt University Press.
- Berger, J. B., & Lyon, S. C. (2005). Past to present: A historical look at retention. In A. Seidman (Ed.), *College student retention: Formula for student success* (pp. 1-30). Westport, CT: American Council on Education and Praeger Publishing.
- Berger, J. B., & Milem, J. F. (1999). The role of student involvement and perceptions of integration in a causal model of student persistence. *Research in Higher Education*, 40, 641-665.
- Berkner, L., & Chavez, L. (1997). *Access to postsecondary education for the 1992 high school graduates* (NCES Rep. No. 98-105). Washington, DC: National Center for Educational Statistics. Retrieved from <http://nces.ed.gov/pubs98/98105.pdf>
- Billson, J. M., & Terry, M. B. (1982). In search of the silken purse: Factors in attrition among first generation students. *College and University*, 58, 57-75.



- Block, S. (2009, August 31). In a recession, is college worth it? Fear of debt changes plans. *USA Today*. Retrieved from [http://www.usatoday.com/money/perfi/college/2009-08-30-college-costs-recession\\_N.htm](http://www.usatoday.com/money/perfi/college/2009-08-30-college-costs-recession_N.htm)
- Bourdieu, P. (1977). Cultural reproduction and social reproduction. In J. Karabel & A. Halsey (Eds.), *Power and ideology in education* (pp. 487-511). New York, NY: Oxford University Press.
- Bourdieu, P. (1986). The forms of capital. In J. G. Richardson (Ed.), *Handbook of Theory and Research for the Sociology of Education* (pp. 241-258). New York, NY: Greenwood Press.
- Bowen, W. G., Chingos, M. M., & McPherson, M. S. (2009). *Crossing the finish line: Completing college at America's public universities*. Princeton, NJ: Princeton University Press.
- Bradburn, E. M. (2002). *Short-term enrollment in postsecondary education: Student background and institutional differences in reasons for early departure 1996-98* (NCES Rep. No. 2003-153). Washington, DC: National Center for Educational Statistics. Retrieved from <http://nces.ed.gov/pubs2003/2003153.pdf>
- Bradbury, B. L., & Mather, P. C. (2009). The integration of first-year, first-generation college students from Ohio Appalachia. *NASPA Journal*, 46, 258-281.
- Bradley, G. (2006). Work participation and academic performance: a test of alternative propositions. *Journal of Education and Work*, 19, 481-501.

- Braxton, J. M. (2000). Introduction: Reworking the student departure puzzle. In J. M. Braxton's (Ed.) *Reworking the student departure puzzle* (pp. 1-10). Nashville, TN: Vanderbilt University Press.
- Braxton, J. M., & Hirschy, A. S. (2005). Theoretical developments in the study of college student departure. In A. Seidman (Ed.), *College student retention: Formula for student success* (pp. 61-88). Westport, CT: American Council on Education and Praeger Publishing.
- Brooks-Terry, M. (1988). Tracing the disadvantages of first-generation college students: An application of Sussman's option sequence model. In S. K. Steinmetz (Ed.), *Family and support systems across the life span* (pp. 121-134). New York, NY: Plenum Press.
- Brown, H. E., & Burkhardt, R. L. (1999, May). *Predicting student success: The relative impact of ethnicity, income, and parental education*. Paper presented at the Annual Forum of the Association of Institutional Research, Seattle, WA.
- Retrieved from <http://www.eric.ed.gov/PDFS/ED433793.pdf>
- Brown, P., Lauder, H., & Ashton, D. (2008). Education, globalisation and the future of the knowledge economy. *European Educational Research Journal*, 7, 131-156.
- Brown, S. E., Santiago, D., & Lopez, E. (2003, March/April). Latinos is higher education: Today and tomorrow. *Change Magazine*, 35(2), 40-46.
- Bryan, E., & Simmons, L. A. (2009). Family involvement: Impacts on post-secondary educational success for first-generation Appalachian college students. *Journal of College Student Development*, 50, 391-406.

- Bui, K. V. T. (2002). First-generation college students at a four-year university: Background characteristics, reasons for pursuing higher education, and first-year experience. *College Student Journal*, 36, 3-11.
- Burns, R., & Burns, R. (2008). Business research methods and statistics using SPSS. Thousand Oaks, CA: Sage Publications. Retrieved from <http://www.uk.sagepub.com/burns/website%20material/Chapter%2024%20-%20Logistic%20regression.pdf>
- Byrd, K. L., & MacDonald, G. (2005). Defining college readiness from the inside out: First-generation college student perspectives. *Community College Review*, 33, 22-37.
- Cabrera, A. F., & La Nasa, S. M. (2001). On the path to college: Three critical tasks facing America's disadvantaged. *Research in Higher Education*, 42, 119–149.
- Cabrera, A. F., Nora, A., & Castañeda, M. B. (1993). College persistence: Structural equations modeling test of an integrated model of student retention. *The Journal of Higher Education*, 2, 123-139.
- Cabrera, N. L., & Padilla, A. M. (2004). Entering and succeeding in the “culture of college”: The story of two Mexican heritage students. *Hispanic Journal of Behavioral Sciences*, 26, 152-170.
- Campbell, T. A., & Campbell, D. E. (2007). Outcomes of mentoring at-risk college students: gender and ethnic matching effect. *Mentoring & Tutoring*, 15, 135-148.
- Campbell, S. M., & Nutt, C. L. (2008). Academic advising in the new global century: Supporting student engagement and learning outcomes achievement. *Peer*

- Review*, 10(1), 4–7. Retrieved from [http://www.aacu.org/peerreview/pr-wi08/documents/PR-WI08\\_AcademicAdvising.pdf](http://www.aacu.org/peerreview/pr-wi08/documents/PR-WI08_AcademicAdvising.pdf)
- Campbell, C. M., Smith, M., Dugan, J. P., & Komives, S. R. (*in press*). Mentors and college student leadership outcomes: The importance of position and process. *Review of Higher Education*.
- Carlson, S. (2011, March 6). Yale's president gives college leaders a primer on making the case for higher education. *The Chronicle of Higher Education*. Retrieved from <http://chronicle.com/article/Making-the-Case-for-Higher/126632/>
- Carnevale, A., Smith, N., & Strohl, F. (2010). *Help wanted: Projections of jobs and education requirements through 2018* [Executive Summary]. Washington, DC: Georgetown University's Center on Education and the Workforce. Retrieved from <http://www9.georgetown.edu/grad/gppi/hpi/cew/pdfs/ExecutiveSummary-web.pdf>
- Ceja, M. (2006). Understanding the role of parents and siblings as information sources in the college choice process of Chicana students. *Journal of College Student Development*, 47, 87-104.
- Chen, X. (2005). *First Generation Students in Postsecondary Education: A Look at Their College Transcripts* (NCES Rep. No. 2005-171). Washington, DC: U.S. Department of Education, National Center for Education Statistics. Retrieved from <http://nces.ed.gov/pubs2005/2005171.pdf>
- Choy, S. (2001). *Students whose parents did not go to college: Postsecondary access, persistence, and attainment* (NCES Rep. No. 2001–126). Washington, DC: U.S.

- Department of Education, National Center for Education Statistics. Retrieved from <http://www.eric.ed.gov/PDFS/ED460660.pdf>
- Christie, N. G., & Dinham, S. M. (1991). Institutional and external influences on social integration in the freshman year. *Journal of Higher Education*, 62(4), 412-436.
- Clark, W.A. (2003). *Immigrants and the American dream: Remaking the middle class*. New York, NY: Guilford.
- Cohen J. (1988). *Statistical power analysis for the behavioral sciences* (2<sup>nd</sup> ed.). Hillsdale, NJ: Lawrence Erlbaum.
- Coleman, J. (1988). Social capital in the creation of human capital. *The American Journal of Sociology*, 94, 95-120.
- Cox, B. E., & Orehovec, E. (2007). Faculty-student interaction outside the classroom: A typology from a residential college. *The Review of Higher Education*, 30, 343-362.
- Crisp, G., & Cruz, I. (2009). Mentoring college students: A critical review of the literature between 1990 and 2007. *Research in Higher Education*, 50, 525-545.
- Cushman, K. (2007). Facing the culture shock of college. *Educational Leadership*, 64(7), 44-47.
- Davis, J. (2010). *The first-generation student experience: Implications for campus practice, and strategies for improving persistence and success*. Sterling, VA: Stylus Publishing.
- de Araujo, P., & Murray, J. (2010). Estimating the effects of dormitory living on student performance. *Economics Bulletin*, 30, 866-878.

Delbanco, A. (2012, February 26). College at risk. *The Chronicle of Higher Education*.

Retrieved from <http://chronicle.com/article/College-at-Risk/130893/>

Dennis, J. M., Phinney, J. S., & Chuateco, L. I. (2005). The role of motivation, parental support, and peer support in the academic success of ethnic minority first-generation college students. *Journal of College Student Development*, 46, 223-236.

Dorans, N. J., Lyu, C. F., Pommerich, M., & Houston, W. M. (1997). Concordance between ACT assessment and recentered SAT I sum scores. *College and University*, 73(2), 24-33.

Dubow, E. F., Boxer, P., & Huesmann, L. R. (2009). Long-term effects of parents' education on children's educational and occupational success: Mediation by family interactions, child aggression, and teenage aspirations. *Merrill-Palmer quarterly (Wayne State University. Press)*, 55, 224-249.

Duggan, M. (2001, November). *Factors influencing the first-year persistence of first-generation college students*. Paper presented at the meeting of the North East Association for Institutional Research, Cambridge, MA.

Dumais, S., & Ward, A. (2010). Cultural capital and first-generation college success. *Poetics*, 38, 245-265.

Elliott, J. R. (2009). *The relationship of involvement in co-curricular programs on community college student success and development* (Doctoral dissertation).

Retrieved from

<http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1043&context=cehsdis&sei-redir=1#search=%22The+relationship+of+involvement+in+co->

curricular+programs+on+community+college+student+success+and+development%22

- Ellwood, D. T., & Kane, T. J. (2000). Who is getting a college education: Family background and the growing gaps in enrollment. In S. Danziger & J. Waldfogel (Eds.), *Securing the Future* (pp. 1-21). New York, NY: Russell Sage.
- Engle, J. (2007). Postsecondary access and success for first-generation college students. *American Academic*, 25-48. Washington, DC: American Federation of Teachers. Retrieved from <http://www.aft.org/pdfs/highered/academic/january07/Engle.pdf>
- Engle, J., Bermeo, A., & O'Brien, C. (2006). *Straight from the source: What works for first-generation college students*. Washington, DC: The Pell Institute for the Study of Higher Education. Retrieved from [http://www.pellinstitute.org/files/files-sfts\\_what\\_works.pdf](http://www.pellinstitute.org/files/files-sfts_what_works.pdf)
- Engle, J., & Tinto, V. (2008). *Moving beyond access: College success for low income, first-generation students*. Washington, DC: The Pell Institute. Retrieved from [http://www.coenet.us/files/files-Moving\\_Beyond\\_Access\\_2008.pdf](http://www.coenet.us/files/files-Moving_Beyond_Access_2008.pdf)
- Erismann, W., & Looney, S. (2007). *Opening the door to the American dream: Increasing higher education and success for immigrants*. Institute for Higher Education Policy: Washington, DC.
- Ewers, T. B. (2007). The power of faculty, staff, and peer interactions: Impact on community college student retention (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3269340)
- Fischer, M. J. (2007). Settling into campus life: Differences by race/ethnicity in college involvement and outcomes. *The Journal of Higher Education*, 78, 125–156.

- Fortuny, K., Capps, R., Simms, M., & Chaudry, A. (2009). Children of immigrants: National and state characteristics. Washington, DC: The Urban Institute.
- Retrieved from [http://www.urban.org/UploadedPDF/411939\\_childrenofimmigrants.pdf](http://www.urban.org/UploadedPDF/411939_childrenofimmigrants.pdf)
- Foubert, J. D., & Grainger, L. U. (2006). Effects of involvement in clubs and organizations on the psychosocial development of first-year and senior college students. *NASPA Journal*, 43, 166–182.
- Friedlander, L. J., Reid, G. J., Shupak, N., & Cribbie, R. (2007). Social support, self-esteem, and stress as predictors of adjustment to university among first-year undergraduates. *Journal of College Student Development*, 48, 259-274.
- Furr, S. R., & Elling, T. W. (2000). The influence of work on college student development. *NASPA Journal*, 37, 454-470.
- Garson, G. David (2011). *Statnotes: Topics in multivariate analysis – logistic regression*. Retrieved <http://faculty.chass.ncsu.edu/garson/PA765/logistic.htm>
- Gefen, D., Straub, D. W., & Boudreau, M. C. (2000). Structural equation modeling and regression: Guidelines for research practice. *Communications of the Association for Information Systems*, 4(7), 1-79. Retrieved from <http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=23&cts=1330695173807&ved=0CDAQFjACOBQ&url=http%3A%2F%2Fciteseerx.ist.psu.edu%2Fviewdoc%2Fdownload%3Fdoi%3D10.1.1.25.781%26rep%3Drep1%26type%3Dpdf&ei=IMpQT7CHPMf30gGmsZjrDQ&usg=AFQjCNGiRrXrSF3FjzEh4vQ0L6u6QwLCkg&sig2=IFkVvnrCt7wlqxDSSCrKvw>



- Gill, J., & King, G. (2004). Numerical issues involved in inverting Hessian matrices. In M. Altman, J. Gill, & M. P. McDonald (Eds.), *Numerical issues in statistical computing for the social scientist* (pp. 143-178). Indianapolis, IN: John Wiley & Sons.
- Gofen, A. (2009). Family Capital: How First-Generation Higher Education Students Break the Intergenerational Cycle. *Family Relations*, 58, 104–120.
- Green, D. (2006). Historically underserved students: What we know, what we still need to know. In D. D. Bragg & E. A. Barnett (Eds.), *Academic pathways to and from the community college* (New Directions for Community Colleges, No. 135, pp. 21-28). Malden, MA: John Wiley & Sons, Inc.
- Guiffrida, D. A. (2006). Toward a cultural advancement of Tinto's theory. *The Review of Higher Education*, 29, 451-472.
- Gupton, J. T., Castelo-Rodriguez, C., Martinez, D. A., & Quintanar, I. (2009). Creating a pipeline to engage low-income, first-generation college students. In S. R. Harper & S. J. Quaye (Eds.), *Student engagement in higher education: Theoretical perspectives and practical approaches to diverse populations* (pp. 243-260). New York, NY: Routledge.
- Hagedorn, L. S. (2005). How to define retention: A new look at an old problem. In A. Seidman (Ed.), *College student retention: Formula for student success* (pp. 89-106). Westport, CT: American Council on Education and Praeger Publishing.
- Hahs-Vaughn, D. (2004). The impact of parents' education level on college students: An analysis using the beginning postsecondary students longitudinal study 1990-92/94. *Journal of College Student Development*, 45, 483–500.

- Hancock, G.R., & Mueller, R.O. (2010). *The reviewer's guide to quantitative methods in the social sciences*. New York, NY: Taylor & Francis.
- Harper, S. R., & Quaye, S. J. (2009). Beyond sameness, with engagement and outcomes for all: An introduction. In S. R. Harper & S. J. Quaye (Eds.), *Student engagement in higher education: Theoretical perspectives and practical approaches to diverse populations* (pp. 1-16). New York, NY: Routledge.
- Hayden, M. L. (2008). *Parental influence on graduate school aspirations among first generation and non-first generation college students attending highly selective institutions*. (Doctoral dissertation). Retrieved from <http://scholar.lib.vt.edu/theses/available/etd-11132008-224940/unrestricted/MLHayden-Dissertation.pdf>
- Hayes, J. (2006). *The differences between first generation and non-first generation freshmen private college students on college adjustment* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3220845)
- Hearn, J.C. (1987). The relative roles of academic, ascribed, and socioeconomic characteristics in college destinations. *Sociology of Education*, 57, 22-30.
- Heath, T. (1992, October). *Predicting the educational aspirations and graduate plans of Black and White college and university students: When do dreams become realities?* Paper presented at the Annual Meeting of Association for the Study of Higher Education, Minneapolis, MN. Retrieved from <http://www.eric.ed.gov/PDFS/ED352915.pdf>
- Hernandez, J. (2000). Understanding the retention of Latino college students. *Journal of College Student Development*, 41, 575-588

- Hertel, J. B. (2002). College generational status: Similarities, differences, and factors in college adjustment. *The Psychological Record*, 52, 3-18.
- Hicks, T. (2002). Advising the first-generation college student: Effective retention tools for colleges and universities. *The Mentor: Academic Advising Journal* (Pennsylvania State University), 4(4). Retrieved from <http://dus.psu.edu/mentor/old/articles/021216th.htm>
- Horn, L., Cataldi, E. F., & Sikora, A. (2005). *Waiting to attend college: Undergraduates who delay their postsecondary enrollment* (NCES Rep. No. 2005-152). Washington, DC: National Center for Education Statistics. Retrieved from <http://nces.ed.gov/pubs2005/2005152.pdf>
- Horn, L., & Nevill, S. (2006). *Profile of undergraduates in U.S. postsecondary education institutions: 2003–04: With a special analysis of community college students* (NCES Rep. No. 2006-184). Washington, DC: National Center for Education Statistics. Retrieved from [http://nces.ed.gov/pubs2006/2006184\\_rev.pdf](http://nces.ed.gov/pubs2006/2006184_rev.pdf)
- Horn, L., & Nuñez, A. M. (2000). *Mapping the road to college: First-generation students' math track, planning strategies and context of support* (NCES Rep. No. 2000-153). Washington, DC: National Center for Educational Statistics. Retrieved from <http://nces.ed.gov/pubs2000/2000153.pdf>
- Hosmer, D.W., & Lemeshow, S. (2000). *Applied logistic regression* (2<sup>nd</sup> ed.). Indianapolis, IN: John Wiley & Sons.
- Hossler, D., & Gallagher, K. (1987). Studying student college choice: A three phase model and the implications for policy makers. *College and University*, 2(3), 207–221.

- Hossler, D., Schmit, J., & Vesper, N. (1999). *Going to college: How social, economic, and educational factors influence the decisions students make*. Baltimore, MD: The Johns Hopkins University Press.
- Hossler, D., & Stage, F. (1992). Family and high school experience influences on the postsecondary educational plans of ninth-grade students. *American Educational Research Journal*, 29, 425-451.
- Hu, S., & Ma, Y. (2010). Mentoring and student persistence in college: A study of the Washington State Achievers Program. *Innovative Higher Education*, 35, 329-341.
- Huang, Y., & Chang, S. (2004). Academic and cocurricular involvement: Their relationship and the best combinations for student growth. *Journal of College Student Development*, 45, 391-406.
- Hurtado, C., Carter, D. F., & Spuler, A. (1996). Latino student transition to college: Assessing difficulties and factors in successful college adjustment. *Research in Higher Education*, 37, 135-157.
- Hurtado, S., Milem, J., Clayton-Pederson, A., & Allen, W. (1999). *Enacting diverse learning environments: Improving the climate for racial/ethnic diversity in higher education*. Washington, DC: George Washington University.
- Inkelas, K. K., & Associates. (2007). *National study of living-learning programs: 2007 report of findings*. Ann Arbor, MI: National Study of Living-Learning Programs.
- Retrieved from [http://www.livelearnstudy.net/images/2007\\_NSLLP\\_Final\\_Report.pdf](http://www.livelearnstudy.net/images/2007_NSLLP_Final_Report.pdf)

- Inkelas, K. K., Daver, Z., Vogt, K., & Leonard, B. J. (2007). Living-learning programs and first-generation college students' academic and social transition to college. *Research in Higher Education, 48*, 403-434.
- Inman, E. W., & Mayes, L. D. (1999). The importance of being first: Unique characteristics of first-generation community college students. *Community College Review, 26*(4), 3-22.
- Ishitani, T. T. (2006). Studying attrition and degree completion behavior among first-generation college students in the United States. *The Journal of Higher Education, 77*, 861-885.
- Jackson, A. P., Smith, S. A., & Hill, C. L. (2003). Academic persistence among Native American college students. *Journal of College Student Development, 44*, 548-565.
- Jehangir, R. (2010). Stories as knowledge: Bringing the lived experience of first-generation college students into the academy. *Urban Education, 45*, 533-553.
- Jenkins, A. L. (2007). *Assessing factors that distinguish first-generation college students from non-first-generation college students at an urban comprehensive university* (Doctoral dissertation). Retrieved from <http://scholar.lib.vt.edu/theses/available/etd-04032007-235708/unrestricted/ALJDisserationFG.pdf>
- Jensen, B. (2004). Across the great divide: Crossing classes and clashing cultures. In M. Zweig Ed.) *What's class got to do with it?* (pp. 168-183). Ithaca, NY: ILR Press.
- Kamp, D. (2009, April 16). Rethinking the American Dream. *Vanity Fair, 51*(4). Retrieved from <http://www.vanityfair.com/culture/features/2009/04/american-dream200904>

- Karp, M. M., Hughes, K. L., & O'Gara, L. (2010a). An exploration of Tinto's integration framework for community college students. *Journal of College Student Retention: Research, Theory and Practice*, 12, 69-86.
- Kim, Y. K., & Sax, L. J. (2009). Student–faculty interaction in research universities: Differences by student gender, race, social class, and first-generation status. *Research in Higher Education*, 50, 437-459.
- Koch, G. F. (2008). *Academic and non-academic experiences that affect first-generation college student attrition* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3319006)
- Komarraju, M., Musulkin, S., & Bhattacharya, G. (2010). Role of student-faculty interactions in developing college students' academic self-concept, motivation, and achievement. *Journal of College Student Development*, 51, 332-342.
- Kuh, G. D., & Hu, S. (2001). The effects of student-faculty interaction in the 1990s. *The Review of Higher Education*, 24, 309-332.
- Kuh, G. D., Kinzie, J., Schuh, J. H., Whitt, E. J., & Associates. (2005). *Student success in college: Creating conditions that matter*. San Francisco, CA: Jossey-Bass
- Kuh, G. D., Schuh, J. H., Whitt, E. J., & Associates. (1991). *Involving colleges: Successful approaches to fostering student learning and development outside of the classroom*. San Francisco, CA: Jossey-Bass.
- Laden, B. V. (2001). Hispanic-serving institutions: Myths and realities. *Peabody Journal of Education*, 76, 73–92.
- Lamont, M., & Lareau, A. (1988). Cultural capital: Allusions, gaps and glissandos in recent theoretical developments. *Sociological Theory*, 6, 153-168.

- Lareau, A., & Weininger, E. B. (2003). Cultural capital in educational research: A critical assessment. *Theory and Society*, 32, 567–606.
- Larsen, L. J. (2004). *The foreign-born population in the United States: 2003* (Current Population Report No. P20-551). Washington, DC: U.S. Census Bureau.  
Retrieved from <http://www.census.gov/prod/2004pubs/p20-551.pdf>
- Light, R. J. (2001). *Making the most of college*. Cambridge, MA: Harvard University Press.
- Lohfink, M. M., & Paulsen, M. B. (2005). Comparing the determinants of persistence for first-generation and continuing-generation students. *Journal of College Student Development*, 46, 409-428.
- London, H. B. (1989). Breaking away: A study of first-generation college students and their families. *American Journal of Education*, 97, 144-170.
- London, H. B. (1996, November-December). How college affects first generation students. *About Campus*, 1(5), 9-13, 23.
- Longwell-Grice, R., & Longwell-Grice, H. (2008). Testing Tinto: How do work for first-generation, working class students? *Journal of College Student Retention*, 9, 407-420.
- Lundberg, C. A. (2004). Working and learning: The role of involvement for employed students. *NASPA*, 41, 201-215.
- Lundberg, C. A., & Schreiner, L. A. (2004). Quality and frequency of faculty-student interaction as predictors of learning: An analysis by student race/ethnicity. *Journal of College Student Development*, 45, 549-565.

- Lundberg, C. A., & Schreiner, L. A., Hovaguimian, K. D., & Miller, S. S. (2007). First-generation status and student race/ethnicity as distinct predictors of student involvement and learning. *NASPA Journal*, 44, 57-83.
- Lynn, P. (2009). Methods for longitudinal surveys. *Methodology of longitudinal surveys*, 1–19. Retrieved from [http://media.johnwiley.com.au/product\\_data/excerpt/12/04700187/0470018712-5.pdf](http://media.johnwiley.com.au/product_data/excerpt/12/04700187/0470018712-5.pdf)
- MacLeod, J. (1987). *Ain't no makin' it*. New York, NY: Routledge.
- MacLeod, J. (2008). *Ain't no makin' it: Aspirations and attainment in a low-income neighborhood* (3<sup>rd</sup> ed.). Boulder, CO: Westview Press.
- Mangold, W. D., Bean, L. G., Adams, D. J., Schwab, W. A., & Lynch, S. M. (2002). Who goes who stays: An assessment of the effect of a freshman mentoring and unit registration program on college persistence. *Journal of College Student Retention*, 4, 95-122.
- Mannan, M. A. (2007). Student attrition and academic and social integration: Application of Tinto's model at the University of Papua New Guinea. *Higher Education*, 53, 147-165.
- Maramba, D. C. (2008). Immigrant families and the college experience: Perspectives of Filipina Americans. *Journal of College Student Development*, 49, 336-350.
- Martin, K. (2009, October 24). Obama pushes small business aid, says the American Dream needs a loan. *ABC News Online*. Retrieved from <http://abcnews.go.com/blogs/politics/2009/10/obama-pushes-small-business-aid-says-the-american-dream-needs-a-loan/>



- Martinez, J. A., Sher, K. J., Krull, J. L., & Wood, P. K. (2009). Blue-collar scholars?: Mediators and moderators of university attrition in first-generation college students. *Journal of College Student Development, 50*, 87-103.
- Massey, D. S., Charles, C. Z., Lundy, G. F., & Fischer, M. J. (2003). *The source of the river*. Princeton, NJ: Princeton University Press.
- Massey, D. S., Mooney, M., Torres, K. C., & Charles, C. Z. (2007). Black immigrants and Black natives attending selective colleges and universities in the United States. *American Journal of Education, 113*, 243-271.
- Mathews, D. (2010). *A stronger nation through higher education*. Indianapolis, IN: Lumina Foundation for Education. Retrieved from [http://www.luminafoundation.org/publications/A\\_stronger\\_nation\\_through\\_higher\\_education.pdf](http://www.luminafoundation.org/publications/A_stronger_nation_through_higher_education.pdf)
- McCarron, G. P., & Inkelas, K. K. (2006). The gap between educational aspirations and attainment for first-generation college students and the role of parental involvement. *The Journal of College Student Development, 47*, 534-549.
- McConnell, P. (2000). What community colleges should do to assist first-generation students. *Community College Review, 28*(3), 75-87.
- McDonough, P. M. (1997). *Choosing colleges: How social class and schools structure opportunity*. New York, NY: State University of New York Press.
- Melguizo, T. (2008). Quality matters: Assessing the impact of attending more selective institutions on college completion rates of minorities. *Research in Higher Education, 49*, 214-236.

- Moore, J. V., & Rago, M. (2009). The impact of employment on student engagement: Results from the NSSE. In B. Perozzi (Ed.), *Enhancing student learning through college employment* (pp. 87-108). Bloomington, IN: Association of College Unions International.
- Murphy, C. G., & Hicks, T. (2006). *Academic characteristics among first-generation and non-first-generation college students*. Faculty Working Papers from the School of Education (Paper 8), Fayetteville State University, Fayetteville, NC. Retrieved from [http://digitalcommons.uncfsu.edu/cgi/viewcontent.cgi?article=1007&context=soe\\_faculty\\_wp](http://digitalcommons.uncfsu.edu/cgi/viewcontent.cgi?article=1007&context=soe_faculty_wp)
- Mutter, P. (1992). Tinto's theory of departure and community college student persistence. *Journal of College Student Development*, 33, 310-317.
- National Association of College and University Business Officers. (1999). *Institutions ranked by fiscal year 1999 market value of endowment assets*. Retrieved from <http://www.nacubo.org/documents/1999%20Total%20Market%20Values.pdf>
- National Longitudinal Survey of Freshmen. (n.d.a). *Data overview*. Princeton, NJ: Author. Retrieved October 1, 2009, from <http://nlsf.princeton.edu/about.htm>
- National Longitudinal Survey of Freshmen. (n.d.b). *National Longitudinal Study of Freshmen* [Brochure]. Princeton, NJ: Author. Retrieved February 15, 2011, from [http://nlsf.princeton.edu/pdfs/NLSF\\_Brochure.pdf](http://nlsf.princeton.edu/pdfs/NLSF_Brochure.pdf)
- National Longitudinal Survey of Freshmen. (2008). *National Longitudinal Survey of Freshmen: public coding manual: Graduation data* [codebook]. Princeton, NJ: Author. Retrieved from <http://opr.princeton.edu/archive/nlsf/>

- National Survey of Student Engagement. (2007). *Experiences that matter: Enhancing student learning and success—annual results 2007*. Bloomington, IN: Indiana University Center for Postsecondary Research. Retrieved from [http://nsse.iub.edu/NSSE\\_2007\\_Annual\\_Report/docs/withhold/NSSE\\_2007\\_Annual\\_Report.pdf](http://nsse.iub.edu/NSSE_2007_Annual_Report/docs/withhold/NSSE_2007_Annual_Report.pdf)
- National Survey of Student Engagement. (2009). *Assessment for improvement: Tracking student engagement over time—annual results 2009*. Bloomington, IN: Indiana University Center for Postsecondary Research. Retrieved from [http://nsse.iub.edu/NSSE\\_2009\\_Results/pdf/NSSE\\_AR\\_2009.pdf](http://nsse.iub.edu/NSSE_2009_Results/pdf/NSSE_AR_2009.pdf)
- National Survey of Student Engagement. (2010). *Major differences: Examining student engagement by field of study—annual results 2010*. Bloomington, IN: Indiana University Center for Postsecondary Research. Retrieved from [http://nsse.iub.edu/NSSE\\_2010\\_Results/pdf/NSSE\\_2010\\_AnnualResults.pdf](http://nsse.iub.edu/NSSE_2010_Results/pdf/NSSE_2010_AnnualResults.pdf)
- Nelson Laird, T. F., Bridges, B. K., Morelon-Quainoo, C. L., Williams, J. M., & Holmes, M. S. (2007). African American and Hispanic Student Engagement at Minority Serving and Predominantly White Institutions. *Journal of College Student Development, 48*, 39-56.
- Nevill, S. C., Chen, X., & Carroll, C. D. (2007). *The path through graduate school: a longitudinal examination 10 years after bachelor's degree*. (Report No. NCES-2007-162). Washington, DC: National Center for Education Statistics. Retrieved from <http://nces.ed.gov/pubs2007/2007162.pdf>
- Newcomb, T. M. (1962). Student peer-group influence. In J. Adelson (Ed.), *The American college* (pp. 469–488). New York, NY: John Wiley & Sons, Inc.

- Noel, L. (1985). Increasing student retention: New challenges and potential. In L. Noel, R. Levitz, D. Saluri, & Associates (Eds.), *Increasing student retention* (pp. 1-27). San Francisco, CA: Jossey-Bass.
- Nora, A., Barlow, E., & Crisp, G. (2005). Student persistence and degree attainment beyond the first year in college: The need for research. In A. Seidman (Ed.), *College student retention: Formula for student success* (pp. 129-154). Westport, CT: American Council on Education and Praeger Publishing.
- Nora, A., & Crisp, G. (2007). Mentoring students: Conceptualizing and validating the multi-dimensions of a support system. *Journal of College Student Retention*, 9, 337-356.
- Nuñez, A., & Cuccaro-Alamin, S. (1998). *First-generation students: Undergraduates whose parents never enrolled in postsecondary education. Statistical analysis report. Postsecondary education descriptive analysis reports.* (NCES Rep. No. 98-082). Washington, DC: National Center for Educational Statistics. Retrieved from <http://nces.ed.gov/pubs98/98082.pdf>
- Obama, B. H. (2012, January). Remarks by the President in the State of the Union Address. Speech presented at the United States Capitol, Washington, DC. Retrieved from <http://www.whitehouse.gov/the-press-office/2012/01/24/remarks-president-state-union-address>
- Ohl-Gigliotti, C. A. (2008). *Social networks and social class: How caucasian, working class parents of first-generation college students experience their child's first year of college.* Available from ProQuest Dissertations and Theses database. (UMI No. 3333578)

- Oldfield, K. (2007). Welcoming first-generation poor and working-class students to college. *About Campus*, 2(6), 2-12.
- Olson, J. C. (2009). *A path analytic comparison of community college and career college students using the Bean and Metzner (1985) Model of Nontraditional Students* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3349628)
- Organisation for Economic and Co-Operation Development. (2008). *Executive Summary of Tertiary Education for the Knowledge Economy*. Paris, France: Author.  
Retrieved from <http://www.oecd.org/dataoecd/36/18/41303688.pdf>
- Pallant, J. (2007). *SPSS survival manual* (2<sup>nd</sup> ed.). Berkshire, UK: Open University Press.
- Pan, W., & Bai, H. (2010). Testing and estimating direct and indirect effects of an intervention program on college student retention: A structural model. *Enrollment Management Journal*, 4(1), 10-26. Retrieved from <http://www.tgslc.org/pdf/emj-sp10.pdf#page=11>
- Pappas, J. P., & Loring, R. K. (1985). Returning learners. In L. Noel, R. Levitz, D. Saluri, & Associates (Eds.), *Increasing student retention* (pp. 138-161). San Francisco, CA: Jossey-Bass.
- Pascarella, E. T. (1984). College environmental influences on students' educational aspirations. *The Journal of Higher Education*, 55, 751-771.
- Pascarella, E. T. (2001). Using student self-reported gains to estimate college impact: A cautionary tale. *Journal of College Student Development*, 42, 488-492.

- Pascarella, E. T., Pierson, C. T., Wolniak, G. C., & Terenzini, P. T. (2004). First-generation college students: Additional evidence on college experiences and outcomes. *The Journal of Higher Education*, 75, 249–284.
- Pascarella, E. T., & Terenzini, P. (1991). *How college affects students: Findings and insights from twenty years of research*. San Francisco, CA: Jossey-Bass.
- Pascarella, E. T., & Terenzini, P. T. (1995). The impact of college on students: Myths, rational myths, and some other things that may not be true. *NACADA Journal*, 15(2), 26–33.
- Pascarella, E. T., & Terenzini, P. (2005). *How college affects students: Findings and insights from twenty years of research* (2<sup>nd</sup> ed.). San Francisco, CA: Jossey-Bass.
- Payne, T. H. (2006). *Perceptions of first-generation college students: factors that influence graduate school enrollment and perceived barriers to attendance* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3223320)
- Peduzzi, P., Concato, J., Kemper, E., Holford, T.R., Feinstein, A.R. (1996). A simulation study of the number of events per variable in logistic regression analysis. *Journal of Clinical Epidemiology*, 49(12), 1373-1379. Retrieved from <http://facmed.univ-rennes1.fr/wkf//stock/RENNES20100407100014blaviollllogistic1.pdf>
- Perez, P. A., & McDonough, P. M. (2008). Understanding Latina and Latino college choice: A social capital and chain migration analysis. *Journal of Hispanic Higher Education*, 7, 249-265.
- Perna, L. (2000). Differences in the decision to attend college among African Americans, Hispanics, and Whites. *The Journal of Higher Education*, 71, 117-141.

- Perna, L. W. (2010). Understanding the working college student. *Academe Online*, 94(4).  
Retrieved from <http://aaup.org/AAUP/pubsres/academe/2010/JA/feat/pern.htm>
- Perna, L. W., & Titus, M. A. (2005). The relationship between parental involvement as social capital and college enrollment: An examination of racial/ethnic group differences. *The journal of higher education*, 76, 485–518.
- Pike, G., & Kuh, G. D. (2005). First- and second-generation college students: A comparison of their engagement and intellectual development. *The Journal of Higher Education*, 76, 276-300.
- Piorkowski, G. K. (1983). Survivor guilt in the university setting. *The Personnel and Guidance Journal*, 61, 620-622.
- Provasnik, S., & Planty, M. (2008). *Community colleges: Special supplement to the condition of education 2008*. (NCES Rep. No. 2008-033). Washington, DC: National Center for Educational Statistics. Retrieved from <http://nces.ed.gov/pubs2008/2008033.pdf>
- Qian, Z., & Blair, S. (1999). Racial/ethnic differences in educational aspirations of high school seniors. *Sociological Perspectives*, 42, 605-625.
- Rayle, A. D., & Chung, K. Y. (2007). Revisiting first-year college students' mattering: Social support, academic stress, and the mattering experience. *Journal of College Student Retention: Research, Theory and Practice*, 9, 21–37.
- Reason, R. D. (2009). An examination of persistence research through the lens of a comprehensive conceptual framework. *Journal of College Student Development*, 50, 659-682.

- Rendón, L. I., Jalomo, R. E., & Nora, A. (2000). Theoretical considerations in the study of minority student retention in higher education. In J. M. Braxton (Ed.), *Reworking the student departure puzzle* (pp. 127-156). Nashville, TN: Vanderbilt University Press.
- Rethlake, C. M. (2007). *An analysis of the persistence of first-generation college students at four-year institutions* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3271304)
- Riehl, R. J. (1994). The academic preparation, aspirations, and first-year performance of first-generation students. *College and University*, 70(1), 14-19.
- Roberts, J., & Rosenwald, G. (2001). Ever upward and no turning back: Social mobility and identity formation among first-generation college students. In D. McAdams, R. Josselson, & A. Lieblich (Eds.), *Turns in the road: Narrative studies of lives in transition* (pp. 91–119). Washington, DC: American Psychological Association.
- Rowan-Kenyon, H. T., Bell, A. D., & Perna, L. W. (2008). Contextual influences on parental involvement in college going: Variations by socioeconomic class. *The Journal of Higher Education*, 79, 564–586.
- Rowan-Kenyon, H. T., Swan, A., Deutsch, N. L., & Gansneder, B. (2010). Academic success for working adult students. In L. W. Perna & G. DuBois (Eds.), *Understanding the working college student: New research and its implications* (pp. 93-114). Sterling, VA: Stylus Publishing.
- Saenz, V. B., Hurtado, S., Barrera, D., Wolf, D., & Yeung, F. (2007). *First in my family: A profile of first-generation college students at four-year institutions since 1971*. Los Angeles, CA: Higher Education Research Institute.



- Sawhill, I. V., & Morton, J. E. (2007). *Economic mobility: Is the American dream alive and well?* Washington, DC: Economic Mobility Project. Retrieved from <http://www.economicmobility.org/assets/pdfs/EMP%20American%20Dream%20Report.pdf>
- Sax, L. J., Bryant, A. N., & Harper, C. E. (2005). The differential effects of student-faculty interaction on college outcomes for women and men. *Journal of College Student Development, 46*, 642-659.
- Settle, J. (2005). *The effect of socioeconomic status on year-to-year persistence of first-generation and continuing-generation college students at two-year and four-year institutions: Developing a conceptual model* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3197914).
- Sewell, W., & Hauser, R. M. (1980). The Wisconsin longitudinal study of social and psychological factors in aspirations and achievements. *Research in Sociology of Education and Socialization, 1*, 59-99.
- Sewell, W., & Shah, V. (1968). Social class, parental encouragement, and educational aspirations. *American Journal of Sociology, 73*, 559-572.
- Sherlin, J. (2002). *Understanding the system persistence of first-generation students through path modeling*. (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3070558)
- Shoup, R., Gonyea, R. M., & Kuh, G. D. (2009). *Helicopter parents: Examining the impact of highly involved parents on student engagement and educational outcomes*. Paper presented at the Annual Forum of the Association for Institutional Research, Atlanta, GA. Retrieved from

<http://cpr.iub.edu/uploads/AIR%202009%20Impact%20of%20Helicopter%20Parents.pdf>

- Simmons, A. N. (2008). A Reliable Sounding Board: Parent Involvement in Students' Academic and Career Decision Making. *NACADA Journal*, 28(2), 33.
- Small, M. L., & Winship, C. (2006). Black students' graduation from elite colleges: Institutional characteristics and between-institution differences. *Social Science Research*, 36(3), 1257–1275. Retrieved from [http://dash.harvard.edu/bitstream/handle/1/3200324/Winship\\_BlackStudents.pdf?sequence=1](http://dash.harvard.edu/bitstream/handle/1/3200324/Winship_BlackStudents.pdf?sequence=1)
- Somers, P., Woodhouse, S., & Cofer, J. (2004). Pushing the boulder uphill: The persistence of first-generation college students. *NASPA Journal*, 41, 418–435.
- Spady, W. G. (1971). Dropouts from higher education: Toward an empirical model. *Interchange*, 2(3), 38–62.
- Spera, C., Wentzel, K. R., & Matto, H. C. (2008). Parental aspirations for their children's educational attainment: Relations to ethnicity, parental education, children's academic performance, and parental perceptions of school climate. *Journal of Youth and Adolescence*, 38, 1140–1152.
- Stahl, V., & Pavel, M. (1992). *Assessing the Bean and Metzner model with community college student data*. Paper presented at the meeting of the American Educational Research Association, San Francisco, CA.
- Stephens, M. N. (2009). *A cultural mismatch: The experience of first-generation college students in elite universities*. (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3395857)

- Stieha, V. (2009). Expectations and experiences: The voice of a first-generation first-year college student and the question of student persistence. *International Journal of Qualitative Studies in Education*, 23, 237–249.
- Strage, A. A. (1999). Social and academic integration and college success: Similarities and differences as a function of ethnicity and family educational background. *College Student Journal*, 33, 198-205.
- Strayhorn, T. (2010). Majority as temporary minority: Examining the influence of faculty-student relationships on satisfaction among White undergraduates at historically Black college and universities. *Journal of College Student Development*, 51, 509-521.
- Sullivan, A. (2001). Cultural capital and educational attainment. *Sociology*, 35, 893-912.
- Svanum, S., & Bigatti, S. M. (2009). Academic course engagement during one semester forecasts college success: Engaged students are more likely to earn a degree, do it faster, and do it better. *Journal of College Student Development*, 50, 120-132.
- Swenson, L. M., Nordstrom, A., & Hiester, M. (2008). The role of peer relationships in adjustment to college. *Journal of College Student Development*, 49, 551-567.
- Switzer, C. (2008). Time for change: empowering organizations to succeed in the knowledge economy. *Journal of Knowledge Management*, 12(2), 18–28.
- Teranishi, R. T., Suárez-Orozco, C., & Suárez-Orozco, M. (2011). Immigrants in Community Colleges. *The Future of Children*, 21(1), 153-169. Retrieved from [http://www.futureofchildren.org/futureofchildren/publications/docs/21\\_01\\_07.pdf](http://www.futureofchildren.org/futureofchildren/publications/docs/21_01_07.pdf)

- Terenzini, P. T., Pascarella, E. T., & Blimling, G. S. (1996). Students' out-of-class experiences and their influence on learning and cognitive development: A literature review. *Journal of College Student Development, 37*, 149-162.
- Terenzini, P. T., Rendón, L. I., Upcraft, M. L., Millar, S. B., Allison, K. W., Gregg, P. L., & Jalomo, R. (1994). The transition to college: Diverse students, diverse stories. *Research in Higher Education, 35*, 57-73.
- Terenzini, P. T., Springer, L., Yaeger, P. M., Pascarella, E. T., & Nora, A. (1996). First-generation college students: Characteristics, experiences, and cognitive development. *Research in Higher Education, 37*, 1-22.
- The White House. (n.d.). Education: Guiding principles. Retrieved from <http://www.whitehouse.gov/issues/education>
- The White House. (2009, March). Fact Sheet: Remarks by the President to the Joint Session of Congress on February 24, 2009. Retrieved from [http://www.whitehouse.gov/the\\_press\\_office/Fact-Sheet-Expanding-the-Promise-of-Education-in-America](http://www.whitehouse.gov/the_press_office/Fact-Sheet-Expanding-the-Promise-of-Education-in-America)
- Tierney, W. E. (1992). An anthropological analysis of student participation in college. *Journal of Higher Education, 63*, 604-617.
- Tinto, V. (1987). *Leaving College: Rethinking the causes and cures of student attrition*. Chicago, IL: University of Chicago Press.
- Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research, 45*, 89-125.
- Tinto, V. (1993). *Leaving College: Rethinking the causes and cures of student attrition* (2<sup>nd</sup> ed.). Chicago, IL: University of Chicago Press.

- Tinto, V. (1997). Classrooms as communities: Exploring the educational character of student persistence. *The Journal of Higher Education*, 68, 599-623.
- Tinto, V. (2006). Research and practice of student retention: What next? *Journal of College Student Retention*, 8, 1-19.
- Ullah, H., & Wilson, M. A. (2007). Students' academic success and its association to student involvement with learning and relationships with faculty and peers. *College Student Journal*, 41, 1192-1202.
- Umbach, P. D., & Wawrzynski, M. R. (2005). Faculty do matter: The role of college faculty in student learning and engagement. *Research in Higher Education*, 46, 153-184.
- U.S. Bureau of Labor Statistics. (2011). *Employment projections: Education pays*. Washington, DC: Author. Retrieved from [http://www.bls.gov/emp/ep\\_chart\\_001.htm](http://www.bls.gov/emp/ep_chart_001.htm)
- U.S. Department of Education. (1999). *National Center for Education Statistics' Integrated Postsecondary Education Data System (IPEDS)* [Data file]. Retrieved from <http://nces.ed.gov/ipeds/datacenter>
- U.S. Department of Education. (2001). *Digest of education statistics' 2001*. Washington, DC: Author. Retrieved from <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2002130>
- Vargas, J. H. (2004). *College knowledge: Addressing information barriers to college*. Boston, MA: The Education Resources Institute. Retrieved from <http://www.teri.org/pdf/research-studies/CollegeKnowledge.pdf>

- Votruba, D. C. (2007). *Interpersonal guilt and college adjustment among first-generation college students*. (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3339650)
- Wall, E., Ferrazzi, G., & Schryer, F. (1998). Getting the goods on social capital. *Rural Sociology*, 63, 300-322.
- Walpole, M. B. (2003). Socioeconomic status and college. *The Review of Higher Education*, 27, 45-73.
- Walpole, M. (2008). Emerging from the Pipeline: African American Students, Socioeconomic Status, and College Experiences and Outcomes. *Research in Higher Education*, 49, 237-255.
- Warburton, E. C., Bugarin, R., & Nuñez, A. (2001). *Bridging the gap: Academic preparation and postsecondary success of first-generation students. Statistical analysis report. Postsecondary education descriptive analysis reports*. (NCES Rep. No. 2001-153). Washington, DC: National Center for Educational Statistics. Retrieved from <http://nces.ed.gov/pubs2001/2001153.pdf>
- Weidman, J. (1989). Undergraduate socialization: A conceptual approach. In J.C. Smart (Ed.), *Higher education: Handbook of theory and research* (pp. 289-322). New York, NY: Agathon Press.
- Whitt, E. J., Edison, M., Pascarella, E. T., Nora, A., & Terenzini, P. T. (1999). Interactions with peers and objective and self-reported cognitive outcomes across 3 years of college. *Journal of College Student Development*, 40, 61-78.

- Wintre, M. G., & Bowers, C. D. (2007). Predictors of persistence to graduation: Extending a model and data on the transition to university model. *Canadian Journal of Behavioural Science*, 39, 220–234.
- Wolf-Wendel, L., Ward, K., & Kinzie, J. (2009). A tangled web of terms: The overlap and unique contribution of involvement, engagement, and integration to understanding college student success. *Journal of College Student Development*, 50, 407-428.
- York-Anderson, D., & Bowman, S. (1991). Assessing the college knowledge of first-generation and second-generation college students. *Journal of College Student Development*, 32, 116-122.
- Zimdars, A., Sullivan, A., & Heath, A. (2009). Elite higher education admissions in the arts and sciences: Is cultural capital the key? *Sociology*, 48, 648-666.
- Zimmerman, E. (n.d.). Chasing the American Dream: Political refugees flee the worst places on earth to launch businesses in America. *CNN News Online*. Retrieved from [http://money.cnn.com/galleries/2007/fsb/0702/gallery.political\\_refugees/6.html](http://money.cnn.com/galleries/2007/fsb/0702/gallery.political_refugees/6.html)